

SERVICE MANUAL

COLOR TELEVISION

aiwa

S/M Code No. 09-003-416-8S1

NOTICES BEFORE REPAIRING

To make the best use of this equipment, make sure to obey the following items when repairing (or mending).

1. Do not damage or melt the tunicate of the leading wire on the AC1 side, including the power supply cord.
2. Do not soil or stain the letters on the spec. inscription plates, notice labels, fuse labels, etc.
3. When repairing the part extracted from the conducted side of the board pattern, fix it firmly with applying bond to the pattern and the part.
4. Restore the following items after repairing.
 - 1) Conditions of soldering of the wires (especially, the distance on the AC1 side).
 - 2) Conditions of wiring, bundling of wires, etc.
 - 3) Types of the wires.
 - 4) Attachment conditions of all types of the insulation.
5. After repairing, always measure the insulation resistance and perform the voltage-withstand test (See Fig-1).
 - 1) The insulation resistance must be 1.5 to 3.0 MΩ when applying 500V per second.
 - 2) In the voltage withstand test, apply 1.2 kV for 1 minute and check that the GO lamp lights.

- * Breaking current set to 10 mA.
- * Connect the safety checker as shown in Fig-1, then measure the resistance and perform the test.
- * Do not touch the equipment during testing.
- * For details of the safety checker, refer to the supplied Operation manual.

Insulation resistance: 1.5 to 3.0 MΩ (500 V/s)
Voltage-withstand: 1.2 kV for 1 minute

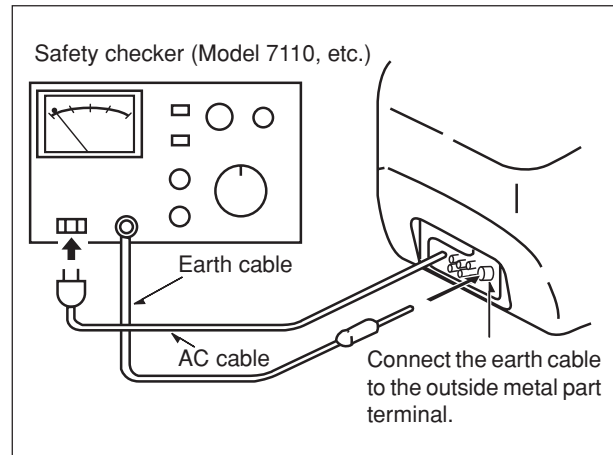


Fig-1

When servicing and checking on the TV, note the followings.

1. Keep the notices.

As for the places which need special attentions, they are indicated with labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.
2. Avoid an electric shock.

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.
3. Use the designated parts.

The parts in this equipment have the specific characteristics of incombustibility and withstand voltage for safety.
Therefore, use a part which has the same character as the replaced part. Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts with a \triangle mark, the designated parts must be used.
4. Put parts and wires in the original position after assembling or wiring.

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled so that these parts do not make contact with the printed board. The inside wiring is designed not to get close to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.
5. Take care of the cathode-ray tube.

By setting an explosion-proof cathode-ray tube in this equipment, safety is secured against implosion. However, when removing it or servicing from the back, it gives out shock that is dangerous. Take enough care to deal with it.
6. Avoid an X-ray.

Safety is secured against an X-ray by giving considerations to the cathode-ray tube and the high voltage peripheral circuit, etc. Therefore, when repairing the high voltage peripheral circuit, use the designated parts and do not change the circuit. Repairing, except indicates, causes rising of high voltage, and the cathode-ray tube emits an X-ray.
7. Perform a safety check after servicing.

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are deteriorated portions around the places serviced.

\triangle Safety Components Symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to confirm to special Safety Specifications.
Therefore, when replacing a component with this symbol make absolutely sure that you use a designated part.

DISASSEMBLY INSTRUCTIONS

1. REAR CABINET REMOVAL

- (1) Remove four screws ①, two screws ② and one ③, then remove the rear cabinet in the direction of the arrow.
(See Figure 1-1)

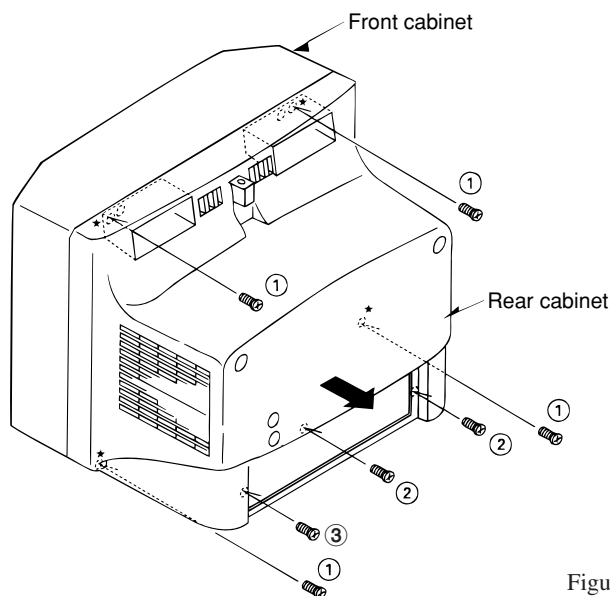


Figure 1-1

2. HIGH-VOLTAGE CAP (ANODE CAP) REMOVAL

2-1. Cautions before Removing

Discharge the anode voltage

- (1) The anode voltage is not discharged completely from the CRT of this unit even after the power is turned off. Be sure to discharge the residual anode voltage before removing the anode cap.

Do not use pliers

- (2) Do not use pliers, etc. to remove the anode cap. If you used pliers and bent the hook to remove the cap, the spring characteristics of the hook could be lost, and when reinstalled, the cap would come off from the CRT anode button easily, causing an accident.

Do not turn the anode cap

- (3) If the anode cap is turned in the direction of its circumference, the hook is likely to come off.

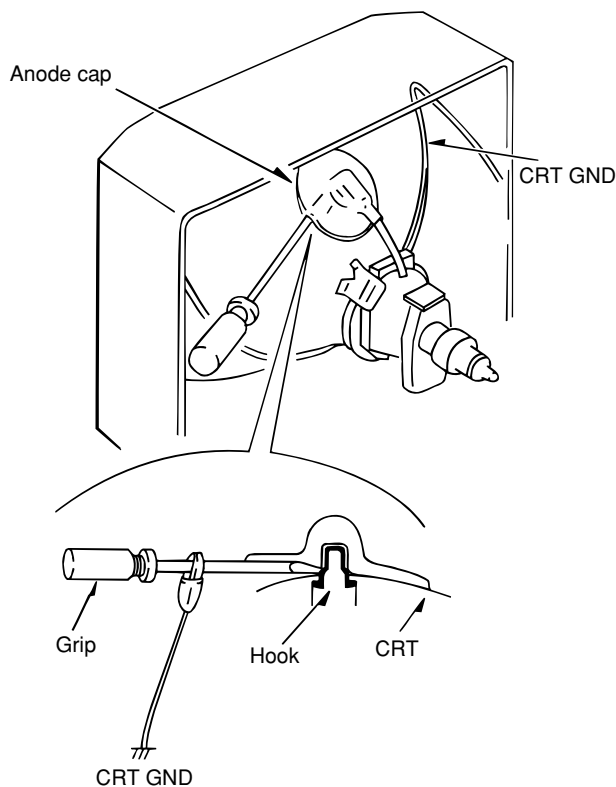


Figure 2-1

2-2. Anode Cap Removal

Discharge the anode voltage. (See Figure 2-1)

- (1) Connect a flat-bladed screwdriver to the CRT GND via an alligator clip.
- (2) Use a tester to check the end of the screwdriver and ground of the TV for continuity.
- (3) Touch the hook with the end of the screwdriver.
Caution : Be careful not to damage the anode cap.
- (4) Turn over the anode cap.
Caution : Be careful not to damage the anode cap.

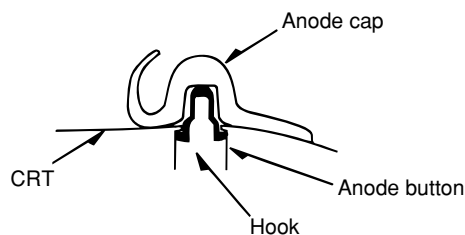


Figure 2-2

- (5) Push the anode cap with your thumb in the direction of arrow ① as shown in the figure, then lift the cap in the direction of arrow ② to release the hook on one side.
(See Figure 2-3)

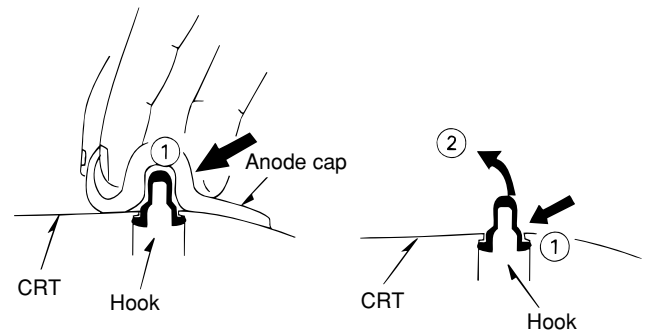


Figure 2-3

- (6) Turn over the anode cap on the side where the hook was released and pull out the cap in the direction opposite to that on which the cap was pushed. (See Figure 2-4)
Caution : Do not pull out the anode cap straight up.
: Do not pull the cap forcibly. After removing the cap, check that the hook is not deformed.

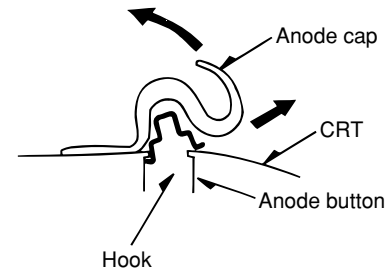


Figure 2-4

3. ANODE CAP REINSTALLTION

Observe the cautions carefully so that no accident occurs due to a defect in installing the anode cap and so it does not come off.

3-1. Caution before Reinstalling

Never turn the anode cap after installing it

Never re-use the hook when it has been deformed

- (1) If the anode cap is turned after it is installed, it may come off. Therefore, arrange the high-voltage cable before attaching the anode cap. (See Figure 3-1)
- (2) If you have attached the anode cap before arranging the high-voltage cable, arrange the cable carefully so the cap does not turn.

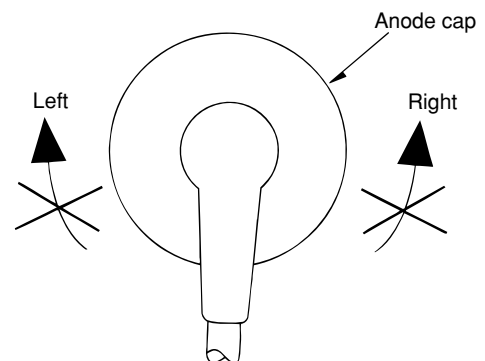


Figure 3-1

3-2. Anode cap reinstallation

- (1) Use a clean cloth moistened slightly with alcohol to clean the installation section. (See Figure 3-2)
Caution : Check that the installation section is free from dust, foreign matter, etc.
- (2) Coat the anode cap installation circumference with an appropriate amount of the specified silicone grease (KS-650N).
Caution : Be careful that silicone grease does not enter the anode button.

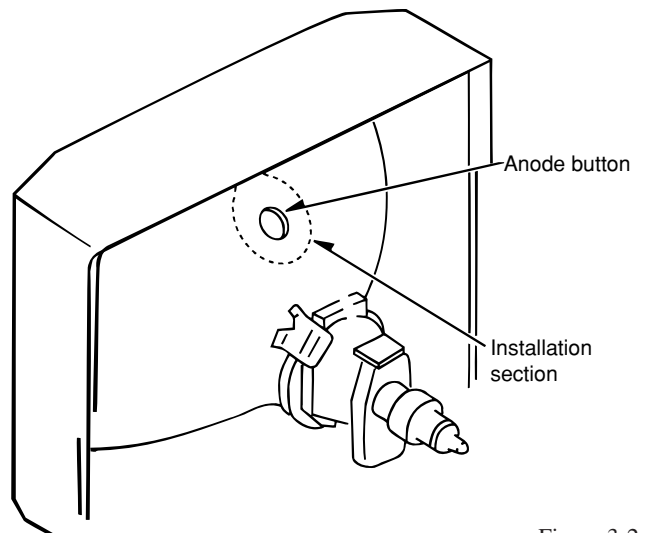


Figure 3-2

- (3) Eliminate twisting, etc. of the high-voltage cable and arrange it so that no twisting occurs. (See Figure 3-3)

Caution : If the cable is not arranged correctly, the anode cap could turn and cause an installation defect.

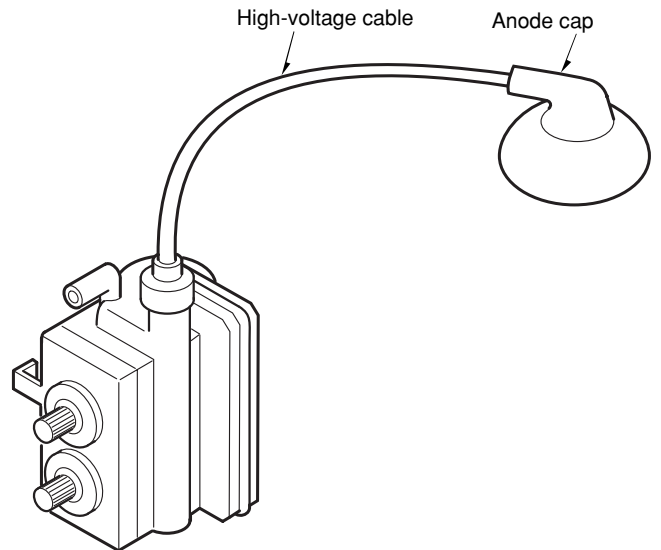


Figure 3-3

- (4) Turn over the rubber cap symmetrically on the left and right. (See Figure 3-4)

Caution : Take great care not to damage the anode cap.

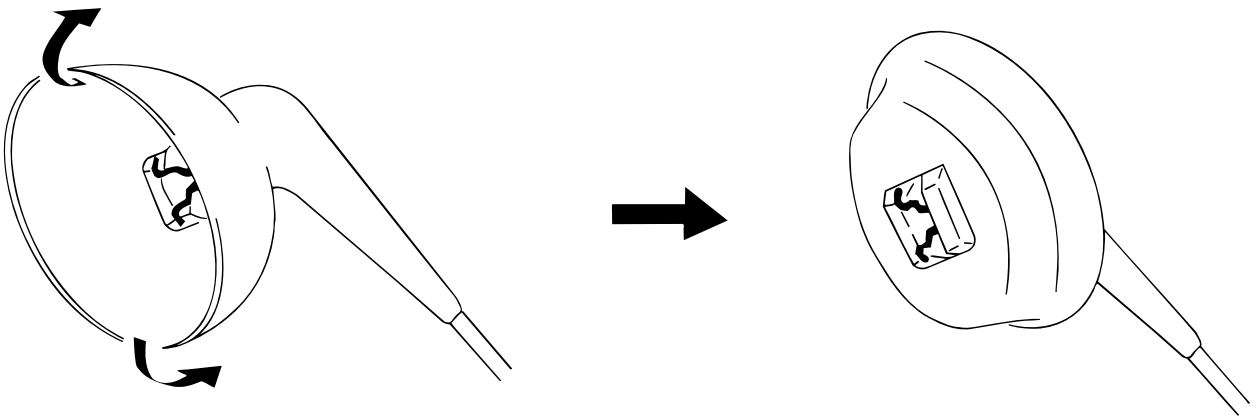


Figure 3-4

- (5) Fit your forefinger over the projection at the center of the cap and hold the cap between your thumb and middle finger. (See Figure 3-5)

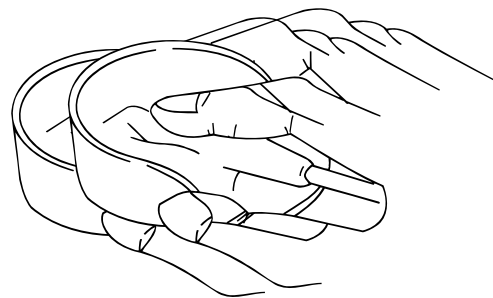


Figure 3-5

- (6) Apply the hook on one side to the anode button as shown on the figure. (See Figure 3-6)
Caution : Check that the hook is held securely.
- (7) Apply the hook on the other side to the anode button as shown in Figure 3-7.

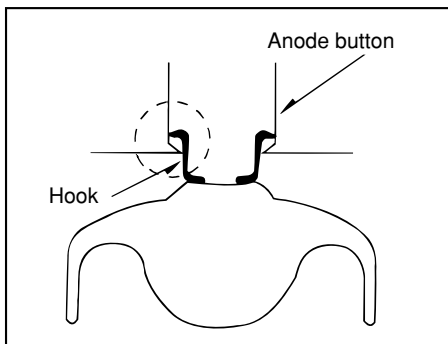
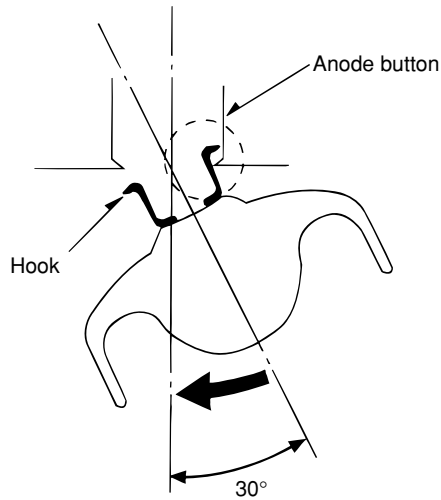


Figure 3-7

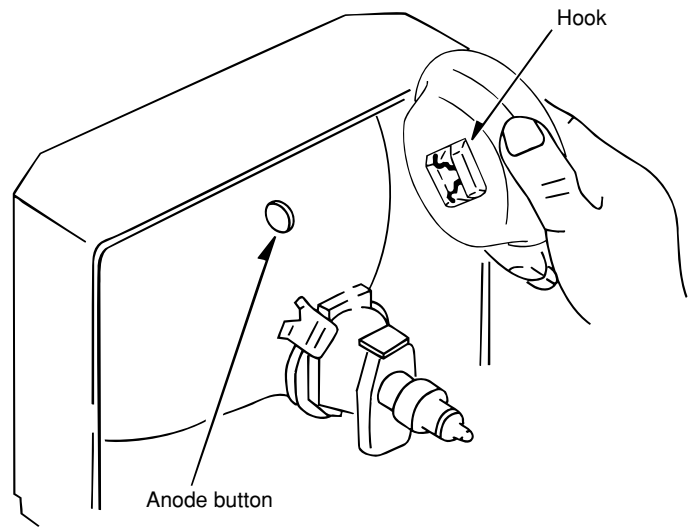


Figure 3-6

- (8) Pull the anode cap slightly with the rubber cap turned over and visually check that the hook is engaged securely.
- (9) Release your hand from the rubber cap of the anode cap.
Caution : Cover the anode cap so that it does not lift.
- (10) Hold the skirt of the anode cap slightly to improve the close contact between the cap and CRT.
- (11) Check that the anode cap is in close contact with the CRT. (See Figure 3-8)

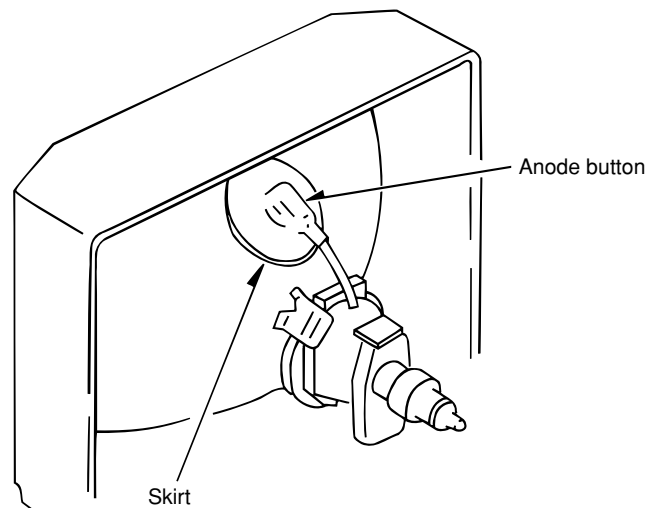


Figure 3-8

4. NK C.B REMOVAL

- (1) Disconnect CN904 (CRT GND).
- (2) Disconnect CN901, CN902.
- (3) Remove the NK C.B. in the direction of arrow ①.
(See Figure 4-1)

5. MAIN C.B REMOVAL

- (1) Remove connector (CN401).
- (2) Remove connector (CN801).
- (3) Remove connector (CN802).
- (4) Pull out the MAIN C.B. in the direction of the arrow ②.
(See Figure 4-1).

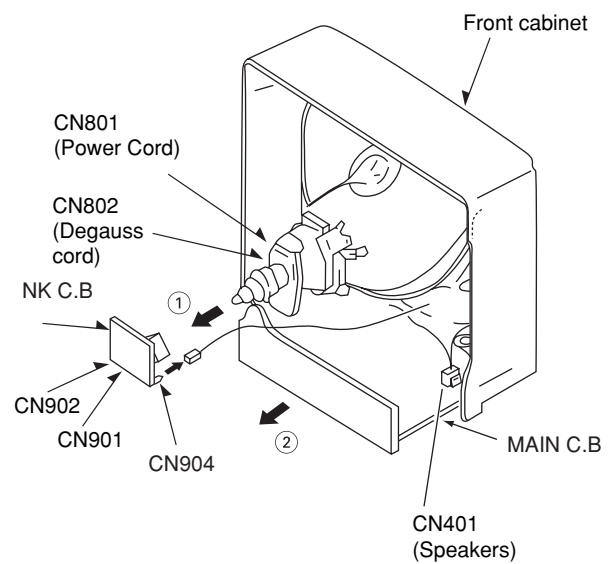


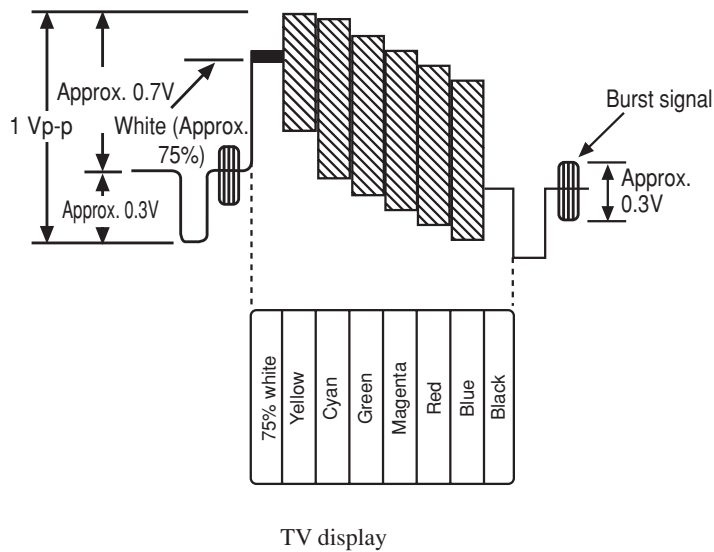
Figure 4-1

ADJUSTMENT

Set-Up For Adjustment

Because the video signal output from a pattern generator is used as the adjustment signal input during adjustment, the video signal output from the pattern generator must conform with the specifications. Measure the output waveform across $75\ \Omega$ load. Confirm that the synchronizing signal has an amplitude of about 0.3 V, the video signal portion has an amplitude of about 0.7 V and the burst signal has an amplitude of about 0.3 V with flat envelope. Confirm that ratio of the burst signal amplitude and the red signal amplitude is 0.30 : 0.66. If the output signal does not conform with the specifications, calibrate the pattern generator. (Refer to pattern generator operation manual.)

Use the LEADER: LCG 404 for the pattern generator.



Color bar signal of a pattern generator

1. CRT Adjustment

1-1. Precautions

- (1) Receive the white raster signal, and then perform aging for at least 20 minutes.
- (2) Demagnetize the area surrounding the CRT with a degausser before making adjustments.
- (3) Set the picture quality for each mode to the factory setting.
- (4) Position the front screen facing the east as much as possible.

1-2. Purpose

- (1) Beam landing adjustment (purity magnet)

Set the left/right balance of beam landing. If there is a discrepancy in this adjustment, a color irregularity will occur. After completion of the landing adjustment, it is necessary to perform convergence adjustment.

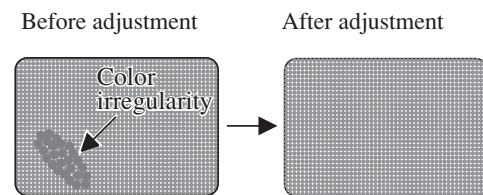


Fig. 1-1

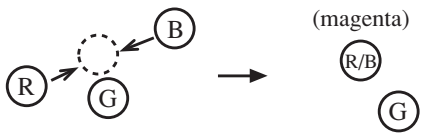
Precautions Before Starting Adjustment

Satisfy the following setting conditions before starting adjustment.

- Allow warm-up of 20 minutes or longer. (Do not turn off during warm-up.)
- Set all picture quality controls of users' setting to initial set-up, unless otherwise specified.
- Picture quality reset
 1. Select "Picture" on the screen menu and press enter button.
 2. Select "Normal" and press enter button.
 3. Select "Reset" and press enter button.
- Set the pattern generator's output level to 1.0Vp-p (across $75\ \Omega$ load).

(2) Beam convergence adjustment (4-pole magnet)

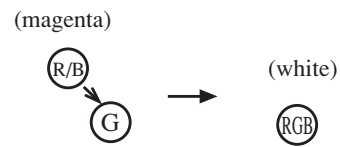
Align the R beam with the B beam. The G beam does not move with this adjustment.



Align the R beam with the B beam
Fig. 1-2

(3) Beam convergence adjustment (6-pole magnet)

With a 4-pole magnet align the G beam with the already aligned R/B beam.



Align the G beam with the R/B beam
Fig. 1-3

(4) The composition of each magnet is as shown in Fig. 1-4.

In making adjustments, rotate the lock ring clockwise (looking from the CRT's back screen) and disengage.

Be careful not to loose the lock ring too much. If the magnet assembly has become shifted during adjustments, secure it to the position in Fig. 1-4.

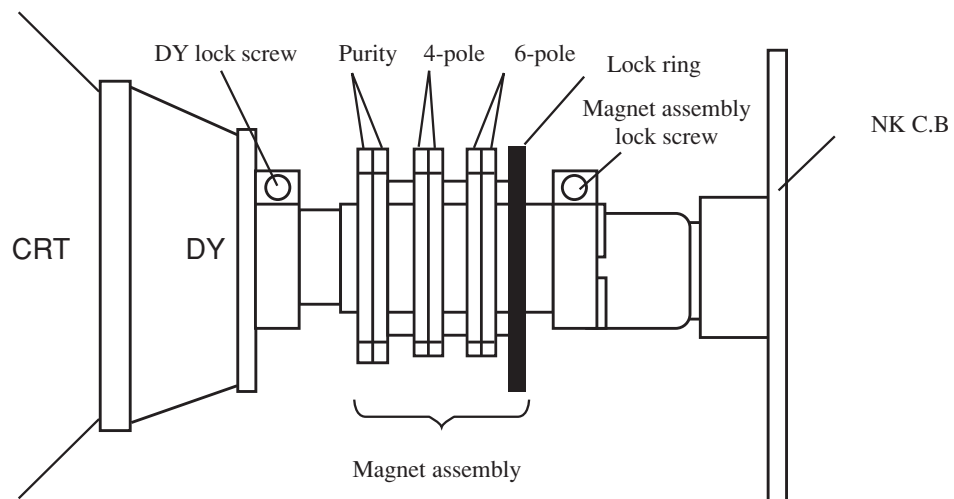


Fig 1-4

1-3. Beam Landing Adjustment

- (1) Receive the green raster signal from the pattern generator.
- (2) Loosen the magnet lock screw, and shift the magnet assembly backward (toward the neck).
- (3) Loosen the DY lock screw, and shift the DY deflecting yoke backward (toward the neck).
- (4) After opening the two purity magnets to the same angle, adjust the color width of the bands on both sides of the screen so that they are equal. (refer to Fig. 1-5 (a)).

As shown in Fig. 1-5 (b), the purity magnet functions in relation to

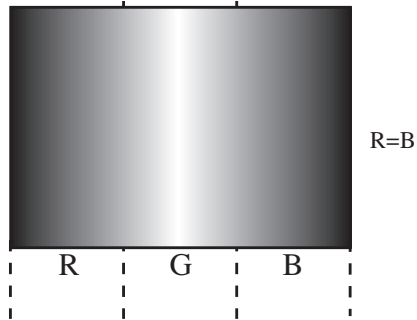


Fig 1-5 (a)

the electron beam.

- (5) Gradually shift the deflecting yoke toward the front (toward the CRT funnel). Stop movement at the point when the screen has become completely green.
- (6) Also, verify the respective monochromatics of red and blue.

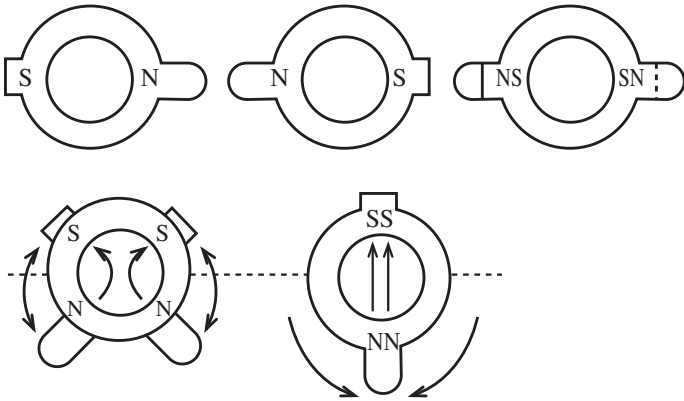


Fig 1-5 (b)

- (7) While looking at the screen, adjust the tilt of the deflecting yoke and tighten the DY lock screw.
- (8) Shift the magnet assembly to the front (toward the CRT funnel), stop movement before the adjustment position and then tighten the magnet lock screw.

At this time, be careful not to shift the position of the purity magnet.

As there is occurrence of convergence distortion after completing the landing adjustments, be sure to carry out convergence adjustments.

If the color irregularities in the screen's corner section are not improved, correct them with the landing magnet. After using the landing magnet, be sure to demagnetize the CRT with degausser and verify that there is no occurrence of color irregularity. (refer to Fig. 1-6)

Landing magnet: 81-JTI-710-010

(two-sided adhesive tape) : 80-XVI-218-010 Cushion

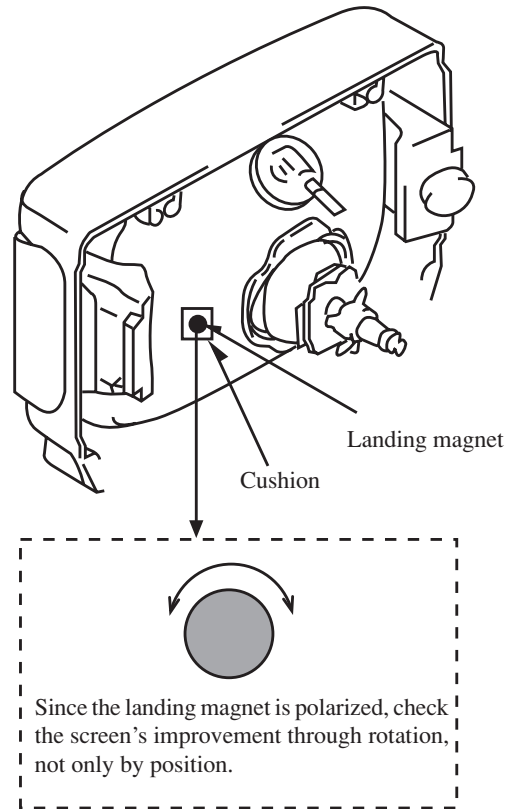


Fig 1-6

- (7) While looking at the screen, adjust the tilt of the deflecting yoke and tighten the DY lock screw.
 - (8) Shift the magnet assembly to the front (toward the CRT funnel), stop movement before the adjustment position and then tighten the magnet lock screw.
- At this time, be careful not to shift the position of the purity magnet.

1-4. Beam Center Convergence Adjustment

Make adjustments on the convergence with 4-pole and 6-pole magnets. Operate each magnet in relation to the electron beam as shown in Figs. 1-7 and 1-8. When performing this adjustment, verify whether there is distortion in the focus adjustment. If necessary, carry out adjustments again.

In Fig. 1-7, two 4-pole magnets are stacked together so as to be of the

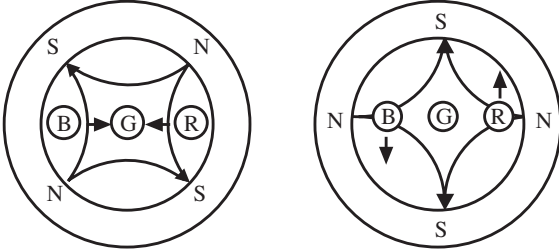


Fig 1-7

same polarity. Move the B and R beams to their respective direction, by rotating the two 4-pole magnets together. By adjusting the opening of the two magnets, it is possible to adjust the amount of the beam's movement.

In Fig. 1-8, the two 6-pole magnets are stacked together so as to be of

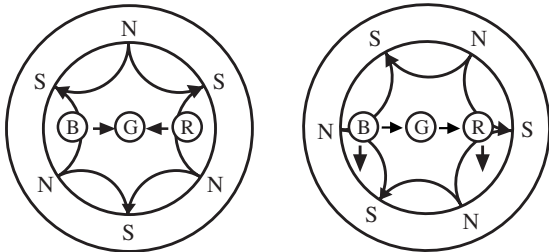


Fig 1-8

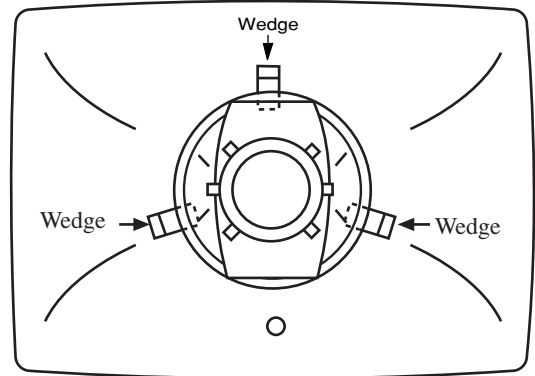
the same polarity. Move the B and R beams to their respective direction, by rotating the two 6-pole magnets together. By adjusting the opening of the two magnets, it is possible to adjust the amount of the beam's movement.

- (1) Receive the dot pattern signal from the pattern generator.
- (2) Pay attention to the center of the screen, and perform adjustments with two 4-pole magnets so that the R beam and B beam are perfectly aligned and become a magenta color.
(Refer to Fig. 1-2)
- (3) In the same way, pay attention to the screen, and perform adjustments with a 6-pole magnet so that the magenta beam and G beam are aligned and become a white dot.
(Refer to Fig. 1-3)
- (4) After adjustments are completed, secure all magnets with the lock link. (Refer to Fig. 1-4)

1-5. The Surrounding Convergence Adjustment

Perform this adjustment after completion of adjustment 1-4.

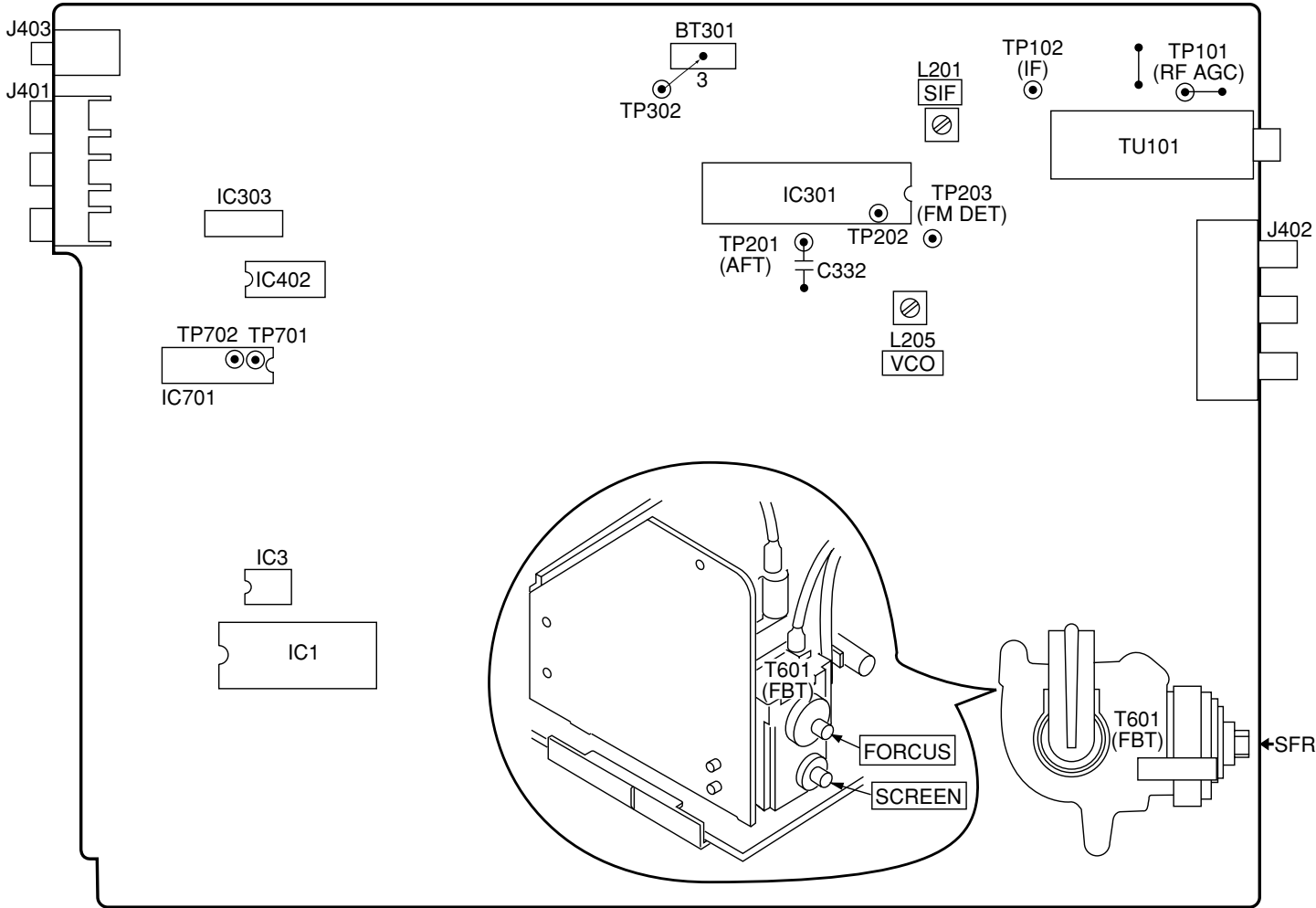
- (1) Shake the deflecting yoke up, down to the right and left, and adjust any discrepancies in the screen's surroundings.
- (2) Insert wedges in three locations in the gap between the deflecting yoke and the surface of the CRT funnel in order to secure the deflecting yoke. (Refer to Fig. 1-9)



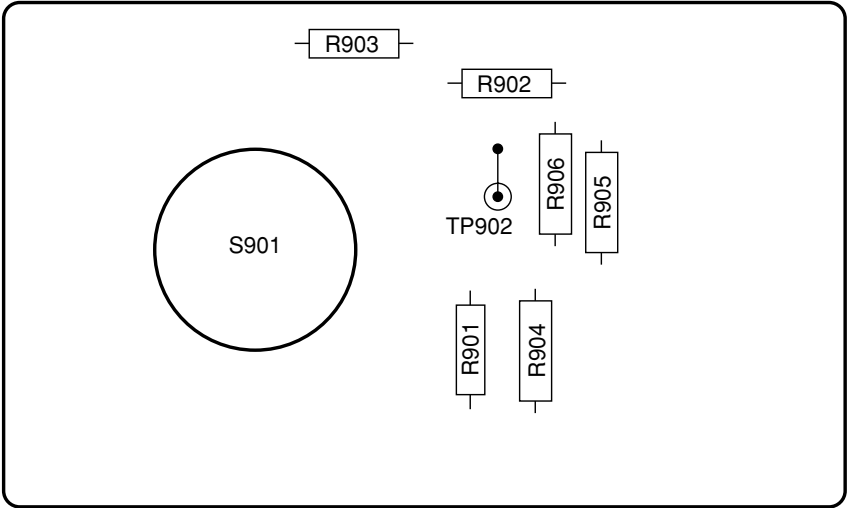
Position of wedge

Fig. 1-9

A MAIN C. B (Top View)



B NK C. B (Top View)



1. Menu Screen Adjustment

- Operate after inputting the following initial figures when replacing EEP ROM.
- Check the condition and adjust the area where the general repair is carried out.

TV-S2011	Initial Figures
PAGE 1	
1. H POS	20
2. V POS	2
3. V SIZE	18
4. OSD POS	6
5. PIF VCO	58
6. RF AGC	32
PAGE 2	
1. R CUT OFF	127
2. G CUT OFF	127
3. B CUT OFF	127
4. G DRIVE	127
5. B DRIVE	127
PAGE 3	
1. SUB CONTRAST	+24
2. SUB BRIGHT	+35
3. SUB TINT	0
4. SUB COLOR	+15
PAGE 4	SPECIFIED FIGURE
1. 3.58 TRAP	ON
2. BPF	AUTO
3. H AFC	+1
4. WPL	OFF
PAGE 5	
1. ATT	10
2. SPECTRAL	31
3. WIDEBAND	31

1-1. **H POS** Horizontal Positioning / Adjustment Menu Screen : PAGE 1-1

Input signal : Crosshatch

Measuring instrument : Pattern generator

- Use the volume keys on the jig remote controller to adjust the dot mark in the centre of crosshatch screen to the exact centering position by allocating an equal number of squares on the left and right sides of the dot. (Fig. 1-1)

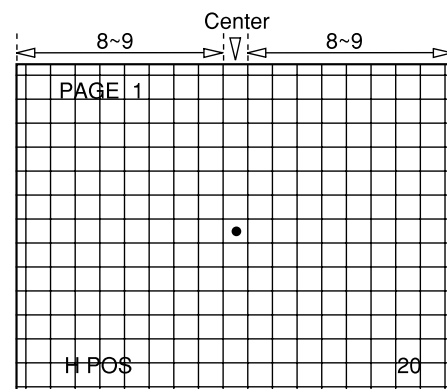


Fig. 1-1

1-2. **V POS** Vertical Positioning / Adjustment Menu Screen : PAGE 1-2

Input signal : Crosshatch

Measuring instrument : Pattern generator

- Using the volume keys on the jig remote controller, adjust the dot mark to the exact vertical centre position in the crosshatch screen. (Fig. 1-2)

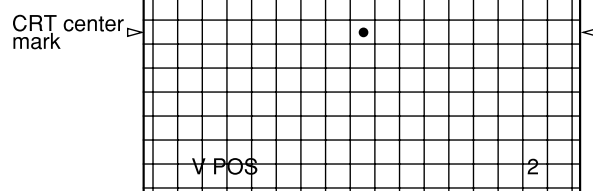


Fig. 1-2

1-3. **V SIZE** Vertical Size Adjustment / Adjustment Menu Screen : PAGE 1-3

Input signal : Crosshatch

Measuring instrument : Pattern generator

- Use the volume keys on the jig remote controller to adjust the vertical number of squares to 13 or 14. (Fig. 1-3)

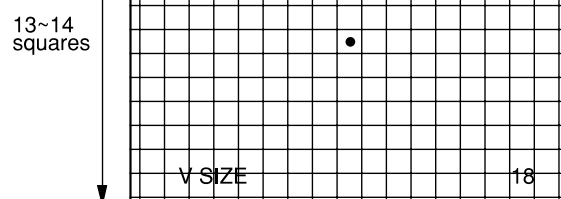


Fig. 1-3

1-4. **OSD POS** OSD Positioning / Adjustment Menu Screen : PAGE 1-4

Input signal : Not specified

- Adjust + mark positions on both left and right in the equal distance towards the screen edge. A = B (Fig. 1-4)

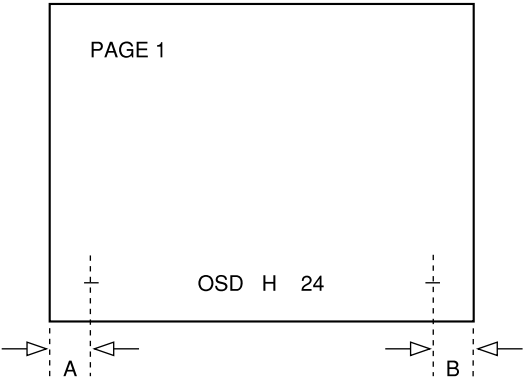


Fig. 1-4

1-5. **PIF VCO** Video IF/VCO Adjustment / Adjustment Menu Screen : PAGE 1-5

Input signal : ANT RF - INPUT

- Use the volume keys on the jig remote controller to adjust AFT until “OK” status is indicated on the screen. (Fig. 1-5)
- If there is more than one range to adjust, select the average figures.

* “NG” will be indicated for SD when no screen signal was sent. It will not be any problem for VCO adjustment. (eg. Video input environment with receiving no signal.) Even in this case, adjustment is possible if there is a load on.

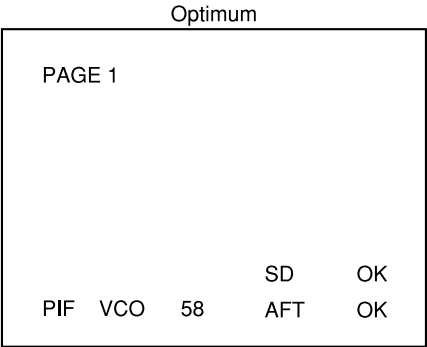


Fig. 1-5

1-6. **RF AGC** RF-AGC / Adjustment Menu Screen : PAGE 1-6

Input signal : ANT RF - INPUT

Test point : TP-101 **RF - AGC** (TU101-1 pin)

Measuring instrument : Oscilloscope

- Connect oscilloscope to TP-101
- Using the volume keys on the jig remote controller, adjust the test point voltage becomes to $3.5V \pm 0.3V$. And at the same time, confirm AFT status changes to “OK” as shown in the fig. 1-6.

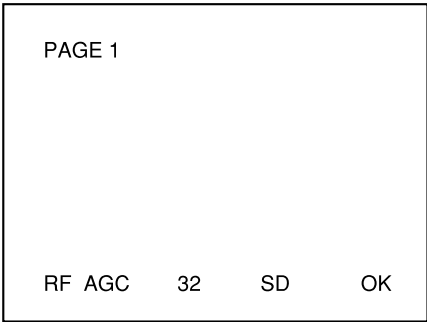


Fig. 1-6

2. White Balance Adjustment : Adjustment Menu Screen : PAGE 2-1~5.

* User’s picture quality will be cleared when the adjustment menu screen appears.

Input signal : White raster

Contents of the adjustment :

1. R CUT OFF
2. G CUT OFF
3. B CUT OFF
4. G DRIVE

5. B DRIVE

* More than 20 minutes of aging is required before adjustment.

* The whole process should be repeated for several times for the adjustment.

Measuring instrument : Pattern generator

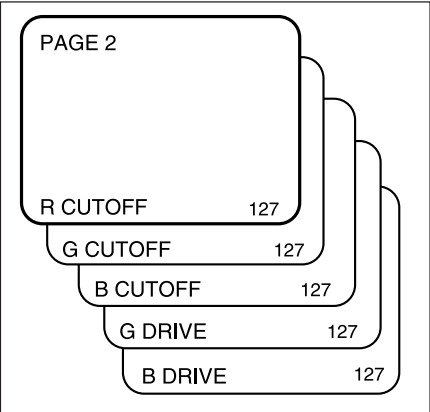


Fig. 2-1

Cut Off Adjustment :

- Use the pattern generator to input the white raster signal.
- Using the volume keys on the jig remote controller, fix the figure of the strongest color on the screen to the level 127 and adjust the other 2 cut off figures until a white picture appears on the screen. Fig. 2-1

Drive Adjustment :

- 2-3. Using the volume keys on the jig remote controller, bring the figure of **4. G DRIVE** up to more than 200 till the color becomes greenish.
- 2-4. Reduce the numeric figure to the point where the greenish color disappears completely.
- 2-5. Use the volume keys on the jig remote controller to increase the numeric figure of **5. B DRIVE** up to more than 200 till the color becomes bluish.
- 2-6. Reduce the numeric figure to the point where the bluish color disappears completely.
- 2-7. Repeat the process of 2-1 to 2-6 for several times and adjust for whiter look.

Focus Adjustment :

Input signal : Dot pattern

Adjustment point : SFR located at upper part of FBT (T601)

Measuring instrument : Pattern generator

- Adjust SFR which is located at upper part of FBT (T601) in order to get the best focus point for the dot.

3. Screen Adjustment :

Input signal : No signal (No raster)

Adjustment point : SFR located at lower part of FBT (T601)

Measuring instrument: Pattern generator / Leader : LCG-404

1. Enter to the “Adjustment Menu Screen” by using the jig remote controller.
2. Press “0” key of the 10 numeric channel keypad to get a horizontal single line screen. (Fig. 2-2)
3. Adjust SFR located at the lower part of FBT (T601) until the horizontal line starts to be slightly brightened.
4. Repeat the process of step 2 and return to the “Adjustment Menu Screen”.



Fig. 2-2

- 3-1. **SUB BRIGHT** Sub-brightness Adjustment / Adjustment Menu Screen : PAGE 3-2 (make sure of the order)
Input signal : Color bar (Stair step)
Measuring instrument : Pattern generator
1. Using the volume keys on the jig remote controller, adjust the scale of the second last from right to be slightly brightened. (Fig. 3-1)

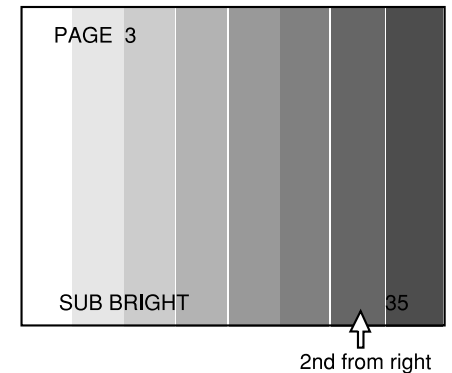


Fig. 3-1

- 3-2. **SUB CONTRAST** Sub-contrast Adjustment / Adjustment Menu Screen : PAGE 3-1
Input signal : Color bar (QIW), Chroma / Off
Measuring instrument : Oscilloscope
Pattern generator
- Test point : TP902/NK C.B.
1. Connect oscilloscope to TP902.
2. Using the volume keys on the jig remote controller, adjust the voltage between pedestal level and 100% white to $80V \pm 2.0V$ as shown in the Fig 3-2.

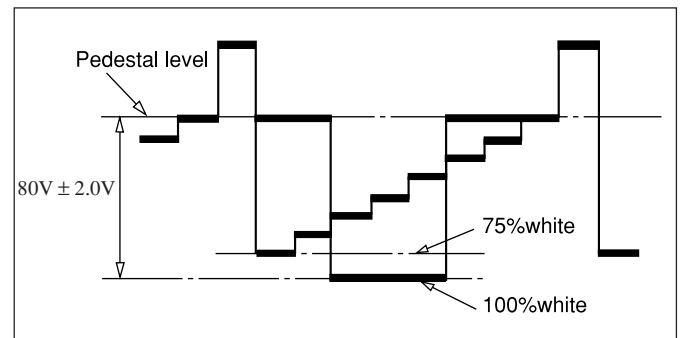


Fig. 3-2

- 3-3. **SUB TINT** Sub-tint Adjustment / Adjustment Menu Screen : PAGE 3-3
Input signal : Color bar
VIDEO IN
Measuring instrument : Oscilloscope
Pattern generator
- Test Point : TP302/BT301 (wire connector) 3 pin
1. Connect oscilloscope to TP302.
2. Use the volume keys on the jig remote controller to align each bottom point of the waveform tangential to the linear ramp as shown in Fig 3-3.

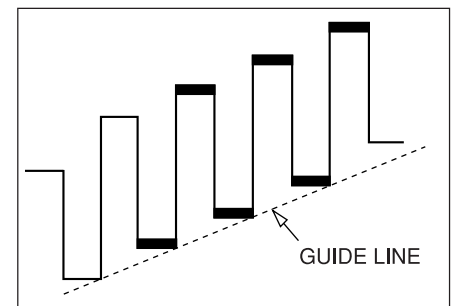


Fig. 3-3

3-4. **SUB COLOR** Sub-color Adjustment / Adjustment Menu Screen : PAGE 3-4

Input signal : Color bar

VIDEO IN

Measuring instrument : Oscilloscope

Pattern generator

Test point : TP302/BT301(wire connector) 3 pin

1. Connect oscilloscope to TP302
2. Use the volume keys of the jig remote controller and adjust the top and bottom excursions of waveform to be linear as shown in the Fig. 3-4.

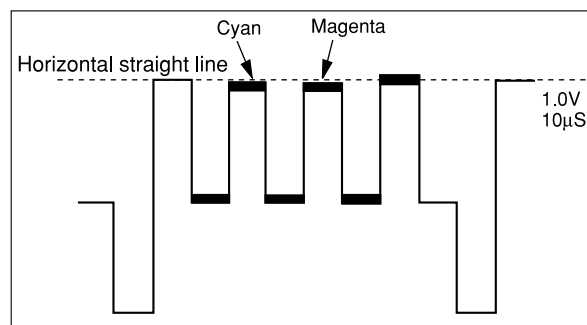


Fig. 3-4

4. **TV SETTING CHECK** Checking of Setting per Model Basis / Adjustment Menu

Screen : PAGE 1~4

The setting details are fixed per model basis. Do not set other than specified.

- Check whether the adjustment menu screen is matching to the table-4. If not, use the volume keys on the jig remote controller to search and set the matching menu screen to the model.

3.58 TRAP	0 : ON
BPF	2 : AUTO
H AFC	1 : +1
WPL	0 : OFF

* The contents for 3.58 TRAP can not be modified.

Table-4

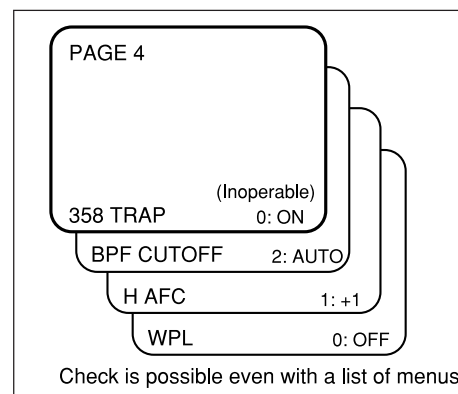


Fig. 4

5-1. **ATT ALIGNMENT** ATT Adjustment / Adjustment Menu Screen : PAGE 5-1

Input signal : ANT RF-Input

Measuring instrument : Oscilloscope

Test point : IC701 2 pin **TV-L**

1. Connect oscilloscope to TP702 (IC701 2 pin)
2. Use the volume keys on the jig remote controller and adjust the figure for IC701 2 pin to $490V \pm 20m$ Vrms.

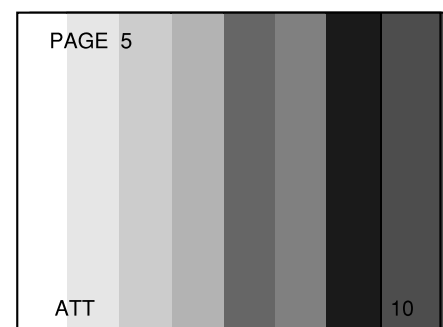


Fig. 5-1

5-2. **SEPARATION ALIGNMENT** Stereo Audio Segregating Adjustment / Adjustment

Menu screen : PAGE 5-2 to 5-3

Input signal : Setting of TV audio multiple signal equipment

Modulation	Internal
Internal Modulation	400Hz
Audio	L ch
Channel	2 ch
Video Signal	Color Bar

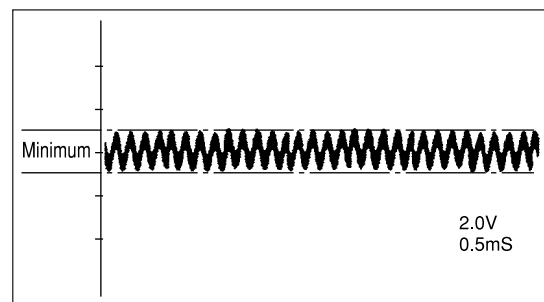


Fig. 5-2

- RF output for Audio multiple signal generator/2CH

Measuring instrument : Oscilloscope

TV audio multiple signal generator

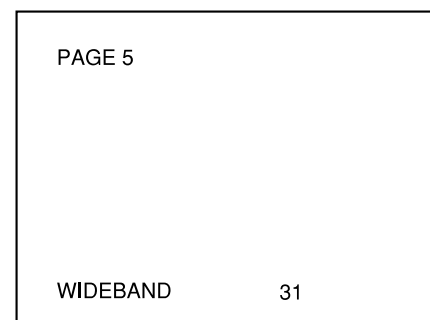


Fig. 5-3

Test Point : IC701 1 pin **TV-R**

- 1.Connect oscilloscope to TP701 (IC701 1 pin).
- 2.Receive TV channel 2.
- 3.PAGE 5-3

Use the volume keys on the jig remote controller to adjust IC701 1 pin to the minimum voltage waveform as shown in the Fig. 5-2 (Fig. 5-3)

4. PAGE 5-2

Set internal modulation of TV audio multiple signal generator to 1kHz. Proceed to adjust as explained in the previous paragraph 3. (Fig. 5-4)

- 5.Repeat the process of 3 to 4 and set them to the minimum levels.

PAGE 5

SPECTRAL

31

Fig. 5-4

6. Tuner Adjustment :

Perform the following adjustment in case of replacing any adjustment element during the repair. Proceed with the following adjustments as well as in the adjustment menu screen. If those adjustments are not completed on both sides, the required adjustment will not be registered even though the adjustment has been processed in the adjustment menu screen.

The components which will be affected due to the repair.

- VCO Coil
- SIF Coil

6-1. **VCO ADJUSTMENT** VCO(PIF) adjustment / Video Carrier Frequency Free Running Adjustment

Input signal : RF-color bar (Generator)

Input level : 90dBμV (Level may not be exactly the same depends on the receiving condition)

Broadcast CH/fc=45.75MHz

- Simple adjustment method receives normal broadcasting.

Mode : TUNER

Test point : INPUT/TP-102 **IF** (TU101-11 pin) or receiving condition

OUTPUT/TP-201 **AFT** (IC301-44 pin)

Adjustment point : L205/**P-IF**

Measuring instrument : Oscilloscope

Pattern generator

1. Connect oscilloscope to TP-201.
2. Input specified level of RF signal to TP-102 and adjust L205 until TP-201 voltage becomes $2.8V \pm 0.2VDC$.

6-2. **SIF ADJUSTMENT** Stereo IF Modulation Adjustment

Input signal : AM/FM-SG RF OUT/4.5MHz - SIF

MOD OFF

90dBμV

- Simple adjustment method receives normal broadcasting.

Mode : TUNER

Test point : INPUT/TP-202 : IC301-52 pin

OUTPUT/TP-203 : IC301-54 pin

Adjustment point : L201/**S-IF**

Measuring instrument : Oscilloscope

AM/FM-Signal generator

1. Connect oscilloscope to TP-203.
2. Input specified signal to TP-202 (or receiving condition) and adjust L201 until TP-203 voltage becomes $4.5V \pm 0.2VDC$. (Fig. 6-1)

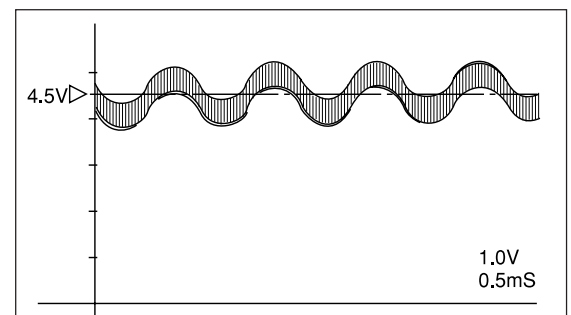


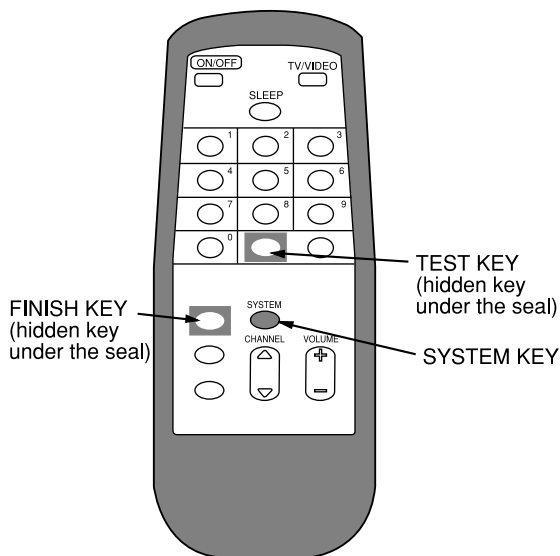
Fig. 6-1

Setting of IIC BUS Data

This model is designed to adjust most parts of the image projection and deflection system by using the jig remote controller.

Preparations :

- Modify the hidden keys on the RC-6VT06 jig remote controller (TV-C142/86-LB4-951-010) so that they can easily be pressed.
2 keys to be modified. (Refer to the below illustration)



Starting the "Service Mode" :

Hidden key / "TEST"

- Press the "TEST" key on the jig remote controller once to enter to the "Aging Mode" (Refer Fig. 1).
- Press the "TEST" key on the jig remote controller one more time to enter to the "Adjustment Mode".

Hidden key / "FINISH"

- The accumulated hours in the "Aging Mode" will be reset by pressing the "FINISH" key on the jig remote controller.
- Do not press this during general repairs.

Aging Mode Operation Method :

Make sure that confirmation after replacing EEP ROM.

- Press the "TEST" key on the jig remote controller and enter to the aging mode.
(Refer to Fig. 1)
- Press the "SYSTEM" key to check the status of distinction switch
 - If the contents are different, choose [NH2] by pressing the "2" key for the destinations.
 - For the data, move 1 - 16 by using channel keys and change to "0" or "1".
 - Select "TV-S2011/[NH2] and leave the data as being displayed. (Fig. 2).

AGING AFT OK 000H NH2

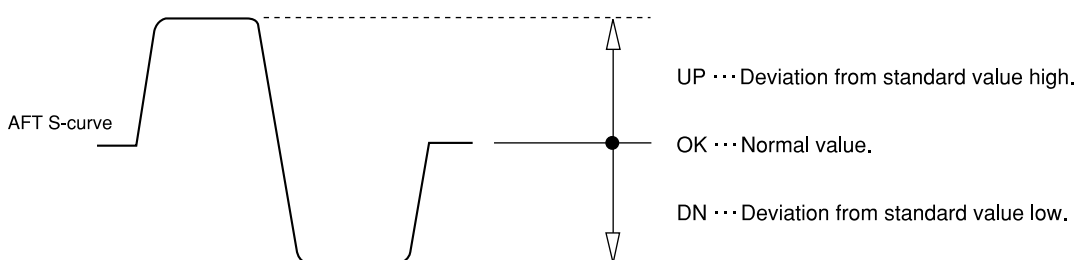
Fig. 1

1 NH1	
2 NH2	← RED COLOR
3 NH3	
4 NH4	
5 AR	RED COLOR
	↓
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	
1 1 0 0 0 1 0 1 1 1 1 1 1 0 0 0	

Fig. 2

Contents of Aging Mode :

- Release "Auto Power Off" function
Release "Auto Power Off" function when no input is supplied.
Use this mode for warming up (aging) during CRT adjustment.
- AFT S-curve status indication
The condition of AFT S-curves are indicated by "OK" for suitable tuning, "UP" for too high or "DN" for too low.



- Display of "CRT ON" accumulated hours
The CRT usage time is accumulated on an hourly basis and is displayed in hexadecimal figures.

Sample calculation of displayed hexadecimal figures : AFT OK 1234 H NH2

$$\begin{array}{ccccccc}
 & 1 & 2 & 3 & 4 & H & \\
 & \swarrow & \swarrow & \swarrow & \swarrow & & \\
 1 \times 16^3 & + & 2 \times 16^2 & + & 3 \times 16^1 & + & 4 \times 16^0 = 4660 \text{ hours} \\
 \text{4th digit} & & \text{3rd digit} & & \text{2nd digit} & & \text{1st digit}
 \end{array}$$

- The display will be reset to 0000H when the accumulated hours exceed 7FFFH(32768 hours).

Adjustment Mode Operation Method :

- Return to the aging display by pressing the "SYSTEM" key and press "TEST" key once again to enter into the adjustment menu screen.

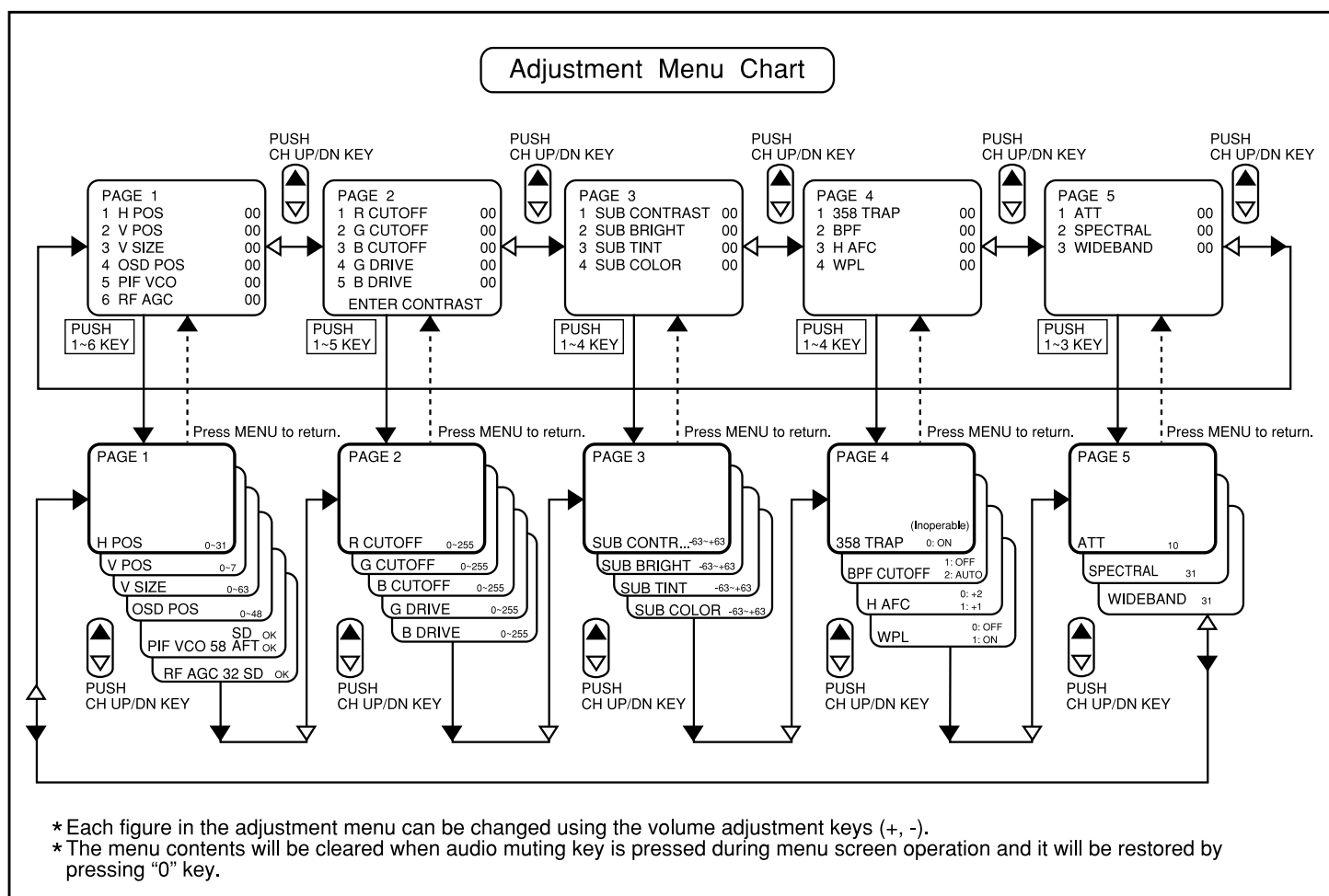
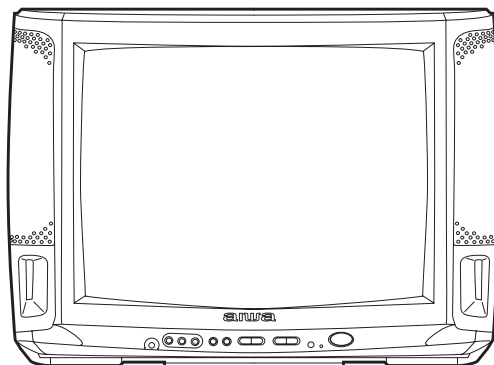


Fig. 3

アイワ株式会社 〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111 (代表)
AIWA CO.,LTD. 2-11, IKENOHATA 1-CHOME, TAITO-KU, TOKYO 110, JAPAN TEL:03 (3827) 3111



SERVICE MANUAL

COLOR TELEVISION

- The Correction Service Manual is issued because of some errors in Service Manual of Model Name TV-S2011 (U), (S/M Code No. 09-99C-416-8R2).

aiwa
S/M Code No. 09-003-416-8C1

CORRECTION
DATA

ELECTRICAL MAIN PARTS LIST

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC				C210	87-018-115-080		CAP, CER 47P-50V
	8Z-JBH-621-010		IC,M37272M8-142SP	C211	87-018-115-080		CAP, CER 47P-50V
	87-A91-538-010		RCR UNIT,SBX1981-72P	C214	87-016-632-080		CAP,E 0.47-50 SSL
	87-A21-433-010		IC,KS24C041I	C215	87-016-632-080		CAP,E 0.47-50 SSL
	87-A20-611-080		IC,M51943BSL-700A	C301	87-016-624-080		CAP,E 10-16 SSL
	87-A21-239-010		IC,TA1201CN				
	87-A20-364-010		IC,KIA7809PI	C302	87-016-624-080		CAP,E 10-16 SSL
	87-002-421-010		IC,NJM2233BL	C303	87-016-624-080		CAP,E 10-16 SSL
	87-A21-090-010		IC,LA4600	C304	87-016-637-080		CAP,E 10-50 SSL
	87-027-666-010		IC,TC4052BP	C305	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-070-237-010		IC,LA7832	C306	87-A10-112-080		CAP,E 100-10 SSL
	8Z-JBH-605-010		IC,CXA2104S				
△	87-A21-290-010		IC,STR30110	C307	87-A10-299-080		CAP,M 0.022-50 J
TRANSISTOR				C308	87-016-632-080		CAP,E 0.47-50 SSL
	87-026-269-080		TR,DTA114ES	C309	87-018-147-080		CAP,TC-U 10P-50 CH
	89-327-854-080		TR,2SC2785F	C310	87-018-119-080		CAP, CER 100P-50V
	89-111-755-080		TR,2SA1175F	C311	87-018-209-080		CAP, CER 0.1-50V
	89-110-154-080		TR,2SA1015Y				
	87-026-245-080		TR,DTC114ES	C312	87-018-209-080		CAP, CER 0.1-50V
	87-A30-050-010		TR,2SD2499	C313	87-018-209-080		CAP, CER 0.1-50V
	87-A30-176-010		TR,2SC1573A P/Q/R	C314	87-018-134-080		CAPACITOR,TC-U 0.01-16
	89-320-012-080		TR,2SC2001L	C315	87-018-131-080		CAP, CER 1000P-50V
				C316	87-A10-378-080		CAP,E 2.2-50 K SH
DIODE							
	87-017-931-080		ZENER,MTZJ5.6B	C317	87-016-634-080		CAP,E 2.2-50 SSL
	87-002-743-080		ZENER,MTZJ 33B	C318	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-070-136-080		ZENER,MTZJ5.1B	C319	87-016-575-080		CAP,E 220-16 SSL
	87-A40-523-080		ZENER,MTZJ9.1B	C320	87-018-196-080		CAP, CER 1500P-16V
	87-A40-348-080		ZENER,MTZJ3.3A	C321	87-016-636-080		CAP,E 4.7-50 SSL
	87-A40-611-080		ZENER,MTZJ3.9B				
	87-020-465-080		DIODE,1SS133 (110MA)	C323	87-016-625-080		CAP,E 22-16 SSL
△	87-A40-520-080		ZENER,MTZJ11B	C324	87-016-632-080		CAP,E 0.47-50 SSL
△	87-A40-286-080		DIODE,RGP10JE-5025	C325	87-016-632-080		CAP,E 0.47-50 SSL
	87-070-274-080		DIODE,1N4003 SEM	C328	87-016-624-080		CAP,E 10-16 SSL
	87-017-354-080		DIODE,RU3	C330	87-016-633-080		CAP,E 1-50 SSL
	87-A40-328-010		DIODE,GBU4JL				
MAIN C.B				C332	87-018-134-080		CAPACITOR,TC-U 0.01-16
BT301	87-JBC-625-010		CONN ASSY,5P V WHT TV-NK	C334	87-018-134-080		CAPACITOR,TC-U 0.01-16
BT601	87-JBC-626-010		CONN ASSY,4P V WHT TV-NK	C335	87-016-574-080		CAP,E 100-16 SSL
C1	87-016-624-080		CAP,E 10-16 SSL	C336	87-018-209-080		CAP, CER 0.1-50V
C2	87-018-134-080		CAPACITOR,TC-U 0.01-16	C338	87-016-632-080		CAP,E 0.47-50 SSL
C3	87-018-134-080		CAPACITOR,TC-U 0.01-16				
C4	87-018-196-080		CAP, CER 1500P-16V	C342	87-016-633-080		CAP,E 1-50 SSL
C5	87-016-633-080		CAP,E 1-50 SSL	C343	87-018-131-080		CAP, CER 1000P-50V
C7	87-016-621-080		CAP,E 220-10 SSL	C401	87-016-577-080		CAP,E 470-16 SSL
C15	87-018-123-080		CAP, CER 220P-50V	C402	87-016-577-080		CAP,E 470-16 SSL
C16	87-016-633-080		CAP,E 1-50 SSL	C403	87-016-577-080		CAP,E 470-16 SSL
C17	87-018-131-080		CAP, CER 1000P-50V				
C18	87-018-128-080		CAP, CERA-SOL SS 560P	C404	87-016-574-080		CAP,E 100-16 SSL
C19	87-016-629-080		CAP,E 0.1-50 SSL	C405	87-016-636-080		CAP,E 4.7-50 SSL
C23	87-018-123-080		CAP, CER 220P-50V	C406	87-016-630-080		CAP,E 0.22-50 SSL
C24	87-018-131-080		CAP, CER 1000P-50V	C407	87-016-630-080		CAP,E 0.22-50 SSL
C101	87-016-636-080		CAP,E 4.7-50 SSL	C410	87-016-624-080		CAP,E 10-16 SSL
C104	87-016-621-080		CAP,E 220-10 SSL				
C106	87-A10-576-080		CAP,CER 0.01-50 Z YF	C411	87-016-624-080		CAP,E 10-16 SSL
C201	87-018-134-080		CAPACITOR,TC-U 0.01-16	C412	87-016-624-080		CAP,E 10-16 SSL
C202	87-018-134-080		CAPACITOR,TC-U 0.01-16	C413	87-016-624-080		CAP,E 10-16 SSL
C203	87-016-632-080		CAP,E 0.47-50 SSL	C414	87-016-624-080		CAP,E 10-16 SSL
C204	87-018-134-080		CAPACITOR,TC-U 0.01-16	C501	88-708-980-810		CAP,M 0.056-100 J AMZV
C205	87-016-577-080		CAP,E 470-16 SSL				
C206	87-A10-287-080		CAP,M 2200P-50 J	C502	87-A10-831-080		CAP,E 1000-25 M SMG
C207	87-016-632-080		CAP,E 0.47-50 SSL	C503	87-016-633-080		CAP,E 1-50 SSL
C208	87-018-134-080		CAPACITOR,TC-U 0.01-16	C504	87-016-633-080		CAP,E 1-50 SSL
C209	87-016-627-080		CAP,E 47-16 SSL	C508	87-A10-469-080		CAP,CER 2200P-500 K B DD10
				C510	87-018-131-080		CAP, CER 1000P-50V
				C511	87-016-591-080		CAP,E 100-35 SSL
				C512	87-018-127-080		CAP, CER 470P-50V
				C601	87-016-599-080		CAP,E 10-250 SSL
				C603	87-010-974-080		CAP,CER 220P-500 B
				C604	87-010-396-080		CAP,E 470-35 SME
				C605	87-016-587-080		CAP,E 1000-25 SSL
				C606	8Z-JBH-626-010		CAP,M/P 0.30-250 J A TYPE
				C607	87-A11-321-090		CAP,E 100-160 M 105 YXA
				C608	8Z-JBJ-602-010		CAP,CER 220P-2K K BN
				△ C609	87-016-482-010		CAP,PP 6800P-1.6K J DKR
				△ C610	87-010-974-080		CAP,CER 220P-500 B
				C611	87-010-974-080		CAP,CER 220P-500 B
				C612	87-016-624-080		CAP,E 10-16 SSL
				C613	87-016-634-080		CAP,E 2.2-50 SSL
				C615	87-016-215-080		CAP,E 1-160 M TWSS

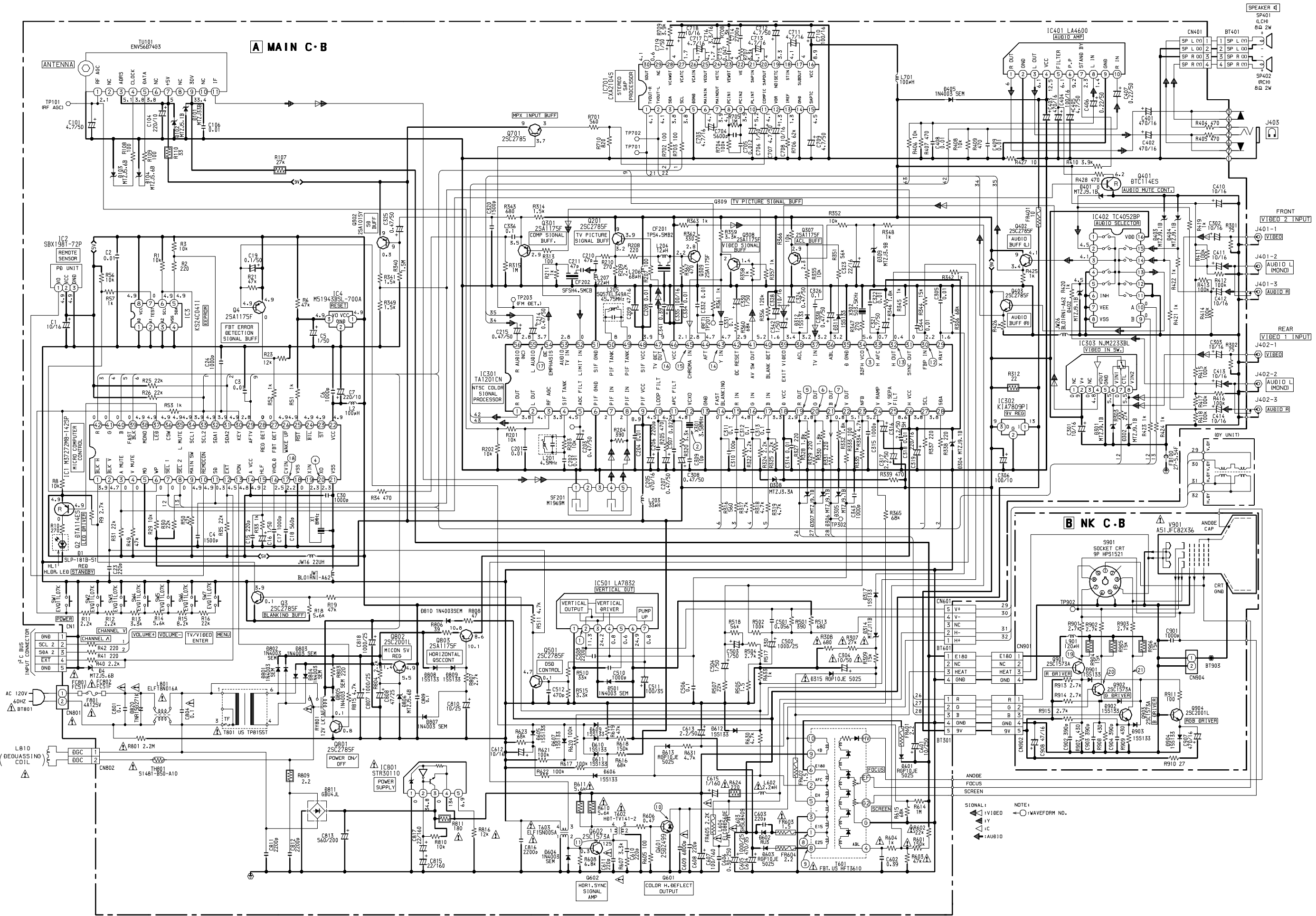
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C703	87-015-464-080		CAP,E 4.7-16 BP	△ L602	87-A50-040-010		COIL,2.2MH
C704	87-A10-292-080		CAP,M 5600P-50 J	△ L603	8Z-JBE-606-010		COIL,LINEARITYSH5L8409
C705	87-A10-296-080		CAP,M 0.012-50 J	△ L604	8Z-JBE-608-010		COIL,CHOKEELC08D560E
C706	87-016-633-080		CAP,E 1-50 SSL	△ L701	87-005-614-080		COIL 100UH LAV35 J
C707	87-016-636-080		CAP,E 4.7-50 SSL	△ L801	8Z-JBH-613-010		FLTR,LINE ELF15N013A
C708	87-016-624-080		CAP,E 10-16 SSL	R107	87-A00-331-090		RES,M/F 27K-2W J RSF(S)
C709	87-016-636-080		CAP,E 4.7-50 SSL	R110	87-A00-160-090		RES,M/F 33-2W J RSF(S)
C710	87-016-574-080		CAP,E 100-16 SSL	△ R307	87-025-427-080		RES,M/F 27K-1/6W F
C711	87-015-464-080		CAP,E 4.7-16 BP	△ R308	88-121-681-080		RES,680-1/8W J
C712	87-016-636-080		CAP,E 4.7-50 SSL	△ R309	87-025-380-080		RES,M/F 15K-1/6W F
C713	87-015-464-080		CAP,E 4.7-16 BP	R312	87-A00-356-090		RES,M/F 22-2W J RSS2X
C714	87-A10-288-080		CAP,M 2700P-50 J	△ R601	88-130-154-080		RES,150K-1/4W J
C716	87-016-301-080		CAP,TN 3.3-16K DN	△ R602	88-121-223-080		RES,22K-1/8W J
C717	87-015-464-080		CAP,E 4.7-16 BP	△ R603	88-121-473-080		RES,47K-1/8W J
C718	87-016-302-080		CAP,TN 10-16K DN	△ R604	88-130-102-080		RES,1K-1/4W J
△ C719	87-016-633-080		CAP,E 1-50 SSL	R606	8Z-JBH-628-080		RES,M/F 0.47-1/2W K ERX 12SJ
△ C801	87-A10-374-010		CAP,M/P 0.1-275 K RMR	△ R607	88-140-332-080		RES,3.3K-1/2W J
△ C804	87-A10-374-010		CAP,M/P 0.1-275 K RMR	△ R610	87-A00-548-090		RES,M/F 5.6K-2W J ERGS
C807	87-016-587-080		CAP,E 1000-25 SSL	△ R611	87-A00-548-090		RES,M/F 5.6K-2W J ERGS
C808	87-016-582-080		CAP,E 47-25 SSL	△ R624	87-A00-544-090		RES,M/F 220-3W J ERGS
C809	87-018-209-080		CAP, CER 0.1-50V	R706	87-A00-130-080		RES,M/F 62K-1/6W F
C810	87-016-628-080		CAP,E 10-25 SSL	△ R801	8Z-JBH-629-080		RES,SD 2.2M-1/2W K ERC 12UG
C811	87-A10-867-090		CAP,CER 2200P-2K K R	R809	87-A00-277-090		RES,CEM 2.2-10W J RGC
C812	87-A10-867-090		CAP,CER 2200P-2K K R	△ R811	8Z-JBE-603-090		RES,CEM 180-20W K ZY
C813	8Z-JBE-604-090		CAP,E 560U-200 K	△ R816	87-025-425-080		RES,M/F 12K-1/6W F
△ C815	87-A11-319-080		CAP,E 22-160 M 105 YXA	△ RY801	87-A90-358-010		RELAY,12V LK1AF
△ C816	87-012-388-010		CAP,CER 2200P-125 UL	SF201	8Z-JBH-633-010		FLTR,SAW M1969-US
C817	87-A11-319-080		CAP,E 22-160 M 105 YXA	SW1	87-A90-712-080		SW,TACT EVQ11L07K
C818	87-016-587-080		CAP,E 1000-25 SSL	SW2	87-A90-712-080		SW,TACT EVQ11L07K
CF201	84-LB3-626-010		FLTR,TPS4.5MB2	SW3	87-A90-712-080		SW,TACT EVQ11L07K
CF202	87-008-574-080		FLTR,SFSH4.5MCB	SW4	87-A90-712-080		SW,TACT EVQ11L07K
CN1	87-009-195-010		CONN,5P B5BEH	SW5	87-A90-712-080		SW,TACT EVQ11L07K
CN401	87-049-469-010		CONN,4P V	SW6	87-A90-712-080		SW,TACT EVQ11L07K
CN601	87-A60-933-010		CONN,4P V B04(5-3)B-DVS-L	SW7	87-A90-712-080		SW,TACT EVQ11L07K
△ CN801	87-099-674-010		CONN,2P VA V	△ T601	8Z-JBE-602-010		FBT,US HFT3610
CN802	82-481-649-010		PLUG,2P V TV-50P	△ T602	85-JT2-653-010		PT,HDT-TV141-2
△ D1	87-070-110-010		LED,SLP-181B-51	△ T603	8Z-JBH-612-010		FLTR,PULSE ELF15N005A
△ D820	8Z-JBH-606-010		VRIS,TNR15G271K	△ T801	8Z-JBH-614-010		PT,US TP8155T
△ F801	87-035-489-010		FUSE,4A125V D UL	△ TH801	87-A90-996-010		POS-THMS,S1481-B50-A10
△ FC801	87-A90-160-080		FUSE CLAMP,FC 51F	TU101	8Z-JBE-610-010		TU UNIT,USA ENV56D74G3
△ FC802	87-A90-160-080		FUSE CLAMP,FC 51F	X1	87-030-212-080		CERA LOCK CST8.0M
FR401	87-029-151-090		RES,FUSE 10-2W J	X301	87-A70-007-080		VIB,XTAL 3.58MHZ AQC-1001
FR601	87-A00-063-060		RES,FUSE 2.2-1/2W J R-TYPE	X302	87-030-327-010		VIB,CER CSB503F30
FR602	87-A00-056-060		RES,FUSE 1.5-2WJ R-TYPE				
△ FR603	87-A00-056-060		RES,FUSE 1.5-2WJ R-TYPE	NK C.B			
FR604	87-A00-050-060		RES,FUSE 2.2-1W J R-TYPE	C901	87-A10-833-090		CAP,CER 1000P-2K K R
△ FR605	87-029-175-060		RES FUSE,2.2K 1/2W J	C902	87-018-126-080		CAP,TC-U 390P-50 B
J401	87-A60-322-110		JACK,PIN 3P Y-W-R W/SW	C903	87-018-126-080		CAP,TC-U 390P-50 B
J402	8Z-JBH-616-010		JACK,PIN 3P Y	C904	87-018-126-080		CAP,TC-U 390P-50 B
J403	87-A60-420-010		JACK,3.5 ST (MSC)	C907	87-016-577-080		CAP,E 470-16 SSL
JW1	8Z-JBH-635-080		COIL,CORE BL01RN1-A62	C908	87-016-627-080		CAP,E 47-16 SSL
JW16	87-003-147-080		COIL,22UH J LAL02	CN901	87-049-469-010		CONN,4P V
JW26	8Z-JBH-635-080		COIL,CORE BL01RN1-A62	CN902	87-009-033-010		CONNECTOR, 5P
L2	87-005-614-080		COIL 100UH LAV35 J	CN904	87-A60-485-010		CONN,2P V LV GRA
L201	8Z-JBR-612-010		COIL,SIF 4.5MHZ 504BN	L901	87-005-615-080		COIL,120UH J LAV35
L203	87-003-148-080		COIL BIAS 33UH	R904	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
L204	87-003-282-080		COIL,12UH	R905	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
L205	8Z-JBH-610-010		COIL,PIF-SQ57EL349A 45.75MHZ	R906	87-A00-165-090		RES,M/F 15K-2W J RSF(S)
L206	87-005-612-080		COIL,68UH J LAV35	S901	86-LBR-670-010		SOCKET,CRT 9P HPS1521
L207	87-003-147-080		COIL, 22UH				

△ Safety Components Symbol

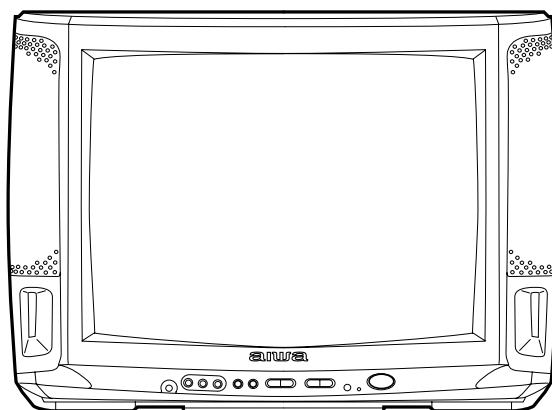
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to confirm to special Safety Specifications.

Therefore, when replacing a component with this symbol make absolutely sure that you use a designated part.

SCHEMATIC - 1 (MAIN / NK)



アイワ株式会社 〒110-8710 東京都台東区池之端1-2-11 ☎03(3827)3111 (代表)
AIWA CO.,LTD. 2-11, IKENOHATA 1-CHOME, TAITO-KU, TOKYO 110, JAPAN TEL:03 (3827) 3111



SERVICE MANUAL










COLOR TELEVISION

- The Correction Service Manual is issued because of some errors in Service Manual of MODEL NAME TV-S2011 (UA), (S/M Code No. 09-99B-416-6R1).

ELECTRICAL MAIN PARTS LIST

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC				C29	87-018-123-080		CAP,CER 220P-50V
	8Z-JB1-621-010		IC,M37272M8-164SP	C101	87-016-636-080		CAP,E 4.7-50 SSL
	87-A90-297-010		RCR UNIT,SBX1981-52	C102	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A21-392-010		IC,S-93C66ADP-1A	C103	87-016-575-080		CAP,E 220-16 SSL
	87-A20-611-080		IC,M51943BSL-700A	C105	87-016-637-080		CAP,E 10-50 SSL
	87-A20-362-010		IC,LA7676D	C106	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A20-364-010		IC,KIA7809PI	C107	87-A10-207-080		CAP,TCS 0.01-50 KB UP050
	87-A20-734-010		IC,TDA2007A	C151	87-016-583-080		CAP,E 100-25 SSL
	87-002-577-010		IC,LA7953	C152	87-016-632-080		CAP,E 0.47-50 SSL
	87-001-647-080		IC,NJM78L12A	C153	87-018-131-080		CAP,CER 1000P-50V
	87-002-524-010		IC,LA7837	C203	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-017-956-010		IC,BA7611AN	C204	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A20-980-010		IC,STR-86707N	C205	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-020-881-080		IC,NJM78L05A	C207	87-016-632-080		CAP,E 0.47-50 SSL
	87-A20-652-010		IC,SBX1837-01	C208	87-018-131-080		CAP,CER 1000P-50V
TRANSISTOR				C210	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A30-091-080		FET,2SJ460	C211	87-A10-585-080		CAP,CER 18P-50 J CH
	89-111-755-080		TR,2SA1175F	C214	87-018-134-080		CAPACITOR,TC-U 0.01-16
	89-327-854-080		TR,2SC2785F	C215	87-016-637-080		CAP,E 10-50 SSL
	89-337-794-580		TR,2SC3779D/E	C216	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A30-090-080		FET,2SK2541	C218	87-016-583-080		CAP,E 100-25 SSL
	89-334-674-580		TR,2SC3467D/E	C219	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-A30-041-110		TR,SE115N	C221	87-016-634-080		CAP,E 2.2-50 SSL
	87-A30-005-010		TR,2SC2688M/L	C301	87-016-583-080		CAP,E 100-25 SSL
	87-A30-050-010		TR,2SD2499	C302	87-016-632-080		CAP,E 0.47-50 SSL
DIODE				C303	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-070-345-080		DIODE,1N4148	C305	87-016-583-080		CAP,E 100-25 SSL
	87-070-150-080		ZENER,MTZJ33D	C306	87-018-134-080		CAPACITOR,TC-U 0.01-16
	87-070-274-080		DIODE,1N4003 SEM	C309	87-016-634-080		CAP,E 2.2-50 SSL
	87-A40-286-080		DIODE,RGP10JE-5025	C312	87-016-637-080		CAP,E 10-50 SSL
	87-A40-690-080		ZENER,MTZJ11B	C314	87-018-125-080		CAP,CER 330P-50V
	87-A40-004-080		ZENER,MTZJ16A	C315	87-016-632-080		CAP,E 0.47-50 SSL
	87-A40-286-050		DIODE,RGP10JE-5025	C316	87-016-633-080		CAP,E 1-50 SSL
	87-A40-450-090		DIODE,RU1P	C319	87-018-130-080		CAP,TC-U 820P-50 B
	87-A40-354-090		DIODE,UF3GL-6251	C320	87-016-627-080		CAP,E 47-16 SSL
	87-A40-440-080		ZENER,MTZJ7.5A	C321	87-016-634-080		CAP,E 2.2-50 SSL
	87-017-654-060		DIODE,GBU6JL6131	C322	87-016-633-080		CAP,E 1-50 SSL
MAIN C.B				C323	87-016-636-080		CAP,E 4.7-50 SSL
BT301	87-JBC-625-010		CONN ASSY,5P V WHT TV-NK	C325	87-018-134-080		CAPACITOR,TC-U 0.01-16
BT401	84-LB2-632-110		CONN ASSY,4P-SP-2	C326	87-018-113-080		CAP,CER 33P-50V
BT403	87-JBC-624-010		CONN ASSY,9P V JK	C327	87-016-633-080		CAP,E 1-50 SSL
C1	87-016-624-080		CAP,E 10-16 SSL	C328	87-018-115-080		CAP,CER 47P-50V
C2	87-018-119-080		CAP,CER 100P-50V	C329	87-016-637-080		CAP,E 10-50 SSL
C3	87-018-134-080		CAPACITOR,TC-U 0.01-16	C330	87-018-194-080		CAP,TC-U 91P-50 B
C4	87-016-633-080		CAP,E 1-50 SSL	C332	87-018-134-080		CAPACITOR,TC-U 0.01-16
C5	87-016-583-080		CAP,E 100-25 SSL	C333	87-018-118-080		CAP,TC-U 82P-50 B
C6	87-018-134-080		CAPACITOR,TC-U 0.01-16	C334	87-018-134-080		CAPACITOR,TC-U 0.01-16
C9	87-018-128-080		CAP,CERA-SOL SS 560P	C336	87-018-134-080		CAPACITOR,TC-U 0.01-16
C10	87-018-131-080		CAP,CER 1000P-50V	C337	87-018-134-080		CAPACITOR,TC-U 0.01-16
C11	87-016-633-080		CAP,E 1-50 SSL	C401	87-016-586-080		CAP,E 470-25 SSL
C12	87-018-209-080		CAP,CER 0.1-50V	C403	87-016-586-080		CAP,E 470-25 SSL
C13	87-018-109-080		CAP,CER 22P-50V	C405	87-A10-776-080		CAP,E 1000-25 M 105 KMG
C14	87-018-109-080		CAP,CER 22P-50V	C406	87-016-621-080		CAP,E 220-10 SSL
C15	87-018-109-080		CAP,CER 22P-50V	C407	87-016-621-080		CAP,E 220-10 SSL
C16	87-018-109-080		CAP,CER 22P-50V	C408	87-016-627-080		CAP,E 47-16 SSL
C17	87-018-109-080		CAP,CER 22P-50V	C412	87-016-633-080		CAP,E 1-50 SSL
C18	87-018-109-080		CAP,CER 22P-50V	C414	87-016-637-080		CAP,E 10-50 SSL
C19	87-018-131-080		CAP,CER 1000P-50V	C418	87-016-583-080		CAP,E 100-25 SSL
C21	87-016-637-080		CAP,E 10-50 SSL	C422	87-016-636-080		CAP,E 4.7-50 SSL
C22	87-016-633-080		CAP,E 1-50 SSL	C423	87-A10-831-080		CAP,E 1000-25 M SMG
C23	87-016-637-080		CAP,E 10-50 SSL	C424	87-016-632-080		CAP,E 0.47-50 SSL
C25	87-016-633-080		CAP,E 1-50 SSL	C425	87-016-632-080		CAP,E 0.47-50 SSL
C26	87-018-209-080		CAP,CER 0.1-50V	C426	87-016-637-080		CAP,E 10-50 SSL
				C427	87-016-586-080		CAP,E 470-25 SSL
				C501	87-016-583-080		CAP,E 100-25 SSL
				C504	87-016-591-080		CAP,E 100-35 SSL
				C505	87-016-149-080		CAP,E 100-50 M 105 KME
				C506	87-A10-367-080		CAP,CER 10P-500 J SL
				C507	87-A10-402-080		CAP,M 0.22-100 J TF TYPE1
				C508	87-016-633-080		CAP,E 1-50 M SSL

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
	C509	87-016-135-010	CAP,E 1000-25 M 105 KME	L202	87-003-140-080		COIL,0.82UH K LAL02
△	C511	87-018-123-080	CAP,CER 220P-50V	L203	84-LB2-681-010		COIL,VCO 45.75MHZ SA
	C601	87-016-596-080	CAP,E 10-160 SSL	L204	87-005-604-080		COIL,15UH J LAV35
	C602	87-016-635-080	CAP,E 3.3-50 SSL	L205	87-003-146-080		COIL,15UH LAL02
	C603	87-A10-457-080	CAP,E 2.2-160 M SSL	L206	84-LB2-682-010		COIL,AFT 45.75MHZ SA
	C604	87-016-648-090	CAP,E 100-160 M SSL	L207	84-LB2-683-010		COIL,SIF 4.5MHZ SA
△	C606	87-A10-625-090	CAP,M/P 8200P-1.25K J	L208	87-005-485-080		COIL,100UH J FLR50
	C607	87-010-974-080	CAP,CER 220P-500 B	L301	87-003-051-080		COIL,470UH
	C609	87-016-583-080	CAP,E 100-25 SSL	L303	87-003-149-080		COIL,47UH
	C610	87-016-594-090	CAP,E 1000-35 M SSL	L304	87-003-147-080		COIL,22UH
△	C611	87-010-976-080	CAP,CER 1000P-500 B	L305	87-003-295-080		COIL,10UH
△	C612	87-010-974-080	CAP,CER 220P-500 B	L306	87-003-147-080		COIL,22UH
	C616	87-A10-674-090	CAP,M/P 0.47-250 J	L501	87-005-608-080		COIL,33UH J LAV35
	C701	87-016-633-080	CAP,E 1-50 SSL	L601	86-LBN-623-010		COIL,HLC 6LB-22
	C702	87-016-637-080	CAP,E 10-50 SSL	L603	87-A50-040-010		COIL,2.2MH
	C703	87-016-637-080	CAP,E 10-50 SSL	L802	87-A50-170-010		COIL,390UH RCH106
	C705	87-016-637-080	CAP,E 10-50 SSL	L803	87-005-608-080		COIL,33UH J LAV35
	C706	87-016-637-080	CAP,E 10-50 SSL	△ LF801	87-JB8-650-010		FLTR,LINE SS24H-K18055
	C707	87-016-633-080	CAP,E 1-50 SSL	△ P801	87-A30-096-010		P-COUPLER,TLP721F
	C708	87-016-637-080	CAP,E 10-50 SSL	△ P802	87-A30-096-010		P-COUPLER,TLP721F
	C709	87-016-637-080	CAP,E 10-50 SSL	△ PR601	87-035-495-080		FUSE,0.75A 125V F 251
	C715	87-016-633-080	CAP,E 1-50 SSL	△ PR801	87-A90-409-080		FUSE,1.5A 125V A 251
	C716	87-016-634-080	CAP,E 2.2-50 SSL	△ PR802	87-026-690-080		FUSE,5A 125V 251
△	C801	87-A10-688-090	CAP,M/P 0.22-275 K(B81133)	△ PR803	87-A91-526-080		FUSE,0.375A 125V F251
△	C802	87-A10-688-090	CAP,M/P 0.22-275 K(B81133)	R327	87-A00-161-090		RES,M/F 47-2W J RSF(S)
	C808	87-A11-941-090	CAP,E 220-400 KMH(25.4*40)	R401	87-A00-150-090		RES,M/F 220-1W J RSF(S)
	C809	87-016-584-080	CAP,E 220-25 SSL	R402	87-A00-150-090		RES,M/F 220-1W J RSF(S)
	C810	87-A10-728-080	CAP,E 680-10 M LXV	R406	87-029-158-060		RES,FUSE 1-1W J
	C811	87-018-131-080	CAP,CER 1000P-50V	R407	87-029-158-060		RES,FUSE 1-1W J
	C812	87-A10-645-010	CAP,M/P 0.01-1K J MMH	R503	87-025-429-080		RES,M/F 47K-1/6W F
	C813	87-012-372-010	CAP,CER 1000P-2K	R507	87-A00-214-090		RES,M/F 1.5-1W J RSF(S)
△	C814	87-A11-324-090	CAP,M/P 1000P-1.6K H ECWH(VB)	R603	87-A00-247-090		RES,M/F 100-3W J RSF
	C815	87-012-397-010	CAP,CER 1000P-2K BN	R605	87-A00-300-090		RES,M/F 2.2-1W J RSF(F)
	C816	87-A10-731-090	CAP,E 220-160 M KMF	R610	87-A00-225-090		RES,M/F 2.2K-5W J RSV5
	C817	87-A10-756-090	CAP,E 100-160 M KMF	R611	87-A00-196-090		RES,M/F 0.47-1/2W J RSF(S)
	C819	87-016-576-080	CAP,E 330-16 SSL	R804	87-A00-224-090		RES,SD 8.2M-1W J CE
	C821	87-016-588-090	CAP,E 2200-25 SSL	R805	87-A00-333-090		RES,M/F 100K-3W J RSS
	C822	87-016-587-090	CAP,E 1000-25 M SSL	R806	87-A00-287-090		RES,CEM 0.33-5W K RGC5
	C823	87-016-627-080	CAP,E 47-16 SSL	R807	87-A00-333-090		RES,M/F 100K-3W J RSS
	C824	87-016-583-080	CAP,E 100-25 SSL	R808	87-A00-243-090		RES,M/F 22-1W J RSF(S)
	C825	87-A10-469-080	CAP,CER 2200P-500 K B DD10	R809	87-A00-332-090		RES,CEM 1-10W J RGC
	CF201	84-LB3-627-010	FLTR,SFSH 4.5MDB SIF	R810	87-A00-332-090		RES,CEM 1-10W J RGC
	CF202	84-LB3-626-010	FLTR,TPS4.5MB2	R812	87-A00-170-090		RES,M/F 82K-3W J RSF(S)
	CN401	87-049-469-010	CONN,4P V WHT EH	R815	87-A00-199-090		RES,M/F 12K-3W J RSF(S)
	CN601	87-099-675-010	CONN,5P V V	R816	87-A00-223-090		RES,M/F 47K-2W J RSF(S)
△	CN801	87-099-454-010	CONN,2P TV-50 EYLET	SF201	87-A90-694-010		FLTR,SAW TSF1239P
△	CN802	87-099-674-010	CONN,2P VA V	SFR151	87-024-430-080		SFR,2.2K H RH063MC
	D1	87-070-110-010	LED,SLP-181B-51 RED	SFR201	87-024-433-080		SFR,10K H RH063MC
△	F801	87-035-489-010	FUSE,4A 125V T237	SFR301	87-024-431-080		SFR,3.3K H RH063MC
	FB801	87-003-320-080	F-BEAD,-9.0 FBR07HA121NB-00	SFR302	87-024-434-080		SFR,22K H RH063MC
	FB802	87-003-320-080	F-BEAD,-9.0 FBR07HA121NB-00	SFR303	87-024-434-080		SFR,22K H RH063MC
	FB803	87-003-320-080	F-BEAD,-9.0 FBR07HA121NB-00	SFR501	87-A90-385-080		SFR,22K H DIA6 EVM
	FB804	87-003-320-080	F-BEAD,-9.0 FBR07HA121NB-00	SW2	87-A90-712-080		SW,TACT EVQ11L07K
	FB805	87-003-320-080	F-BEAD,-9.0 FBR07HA121NB-00	SW3	87-A90-712-080		SW,TACT EVQ11L07K
△	FC801	87-033-213-080	FUSE CLAMP,PFC5000	SW4	87-A90-712-080		SW,TACT EVQ11L07K
△	FC802	87-033-213-080	FUSE CLAMP,PFC5000	SW5	87-A90-712-080		SW,TACT EVQ11L07K
	FR601	87-A00-063-060	RES,FUSE 2.2-1/2W J R-TYPE	SW6	87-A90-712-080		SW,TACT EVQ11L07K
	FR602	87-A00-478-090	RES,FUSE 2.2-1W J	SW7	87-A90-712-080		SW,TACT EVQ11L07K
	FR604	87-A00-051-060	RES,FUSE 2.7-1W J R-TYPE	SW501	87-A90-567-010		SW,LVR 4-1-3 EVQRAAL10
	FR605	87-A00-275-090	RES,FUSE 2.2K-1W J R-TYPE	△ SW801	87-A90-364-010		SW,PUSH SDDL1-C-D-2
	FR801	87-A00-081-090	RES,FUSE 1-1/2W	△ T601	87-JBC-610-110		FBT,HFT3601 (HOT)
	HL1	84-LB3-216-010	HLDR,LED	△ T602	85-JT2-653-010		PT,HDT-TV141-2
	J401	87-A60-420-010	JACK,3.5 ST(MSC)	△ T801	87-JBC-627-110		PT,SWT 7JB
	J701	87-A60-322-110	JACK,PIN 3P Y-W-R W/SW	△ TH801	87-A90-830-010		POS-THMS,PTH451C463BF9R0Q270
	J702	8Z-JBH-616-010	JACK,PIN 3P Y	TU101	87-A90-660-010		TU UNIT,BTP-AB455
	L1	87-005-614-080	COIL,100UH LAV35 J	X1	87-030-212-080		VIB,CER 8.000MHZ CST
	L2	87-005-614-080	COIL,100UH LAV35 J	X301	87-A70-007-080		VIB,XTAL 3.58MHZ AQC-1001
	L101	87-005-614-080	COIL,100UH LAV35 J	X302	87-A70-017-010		VIB,CER 503KHZ F45
	L102	87-005-608-080	COIL,33UH J LAV35				
	L201	84-LB2-684-010	COIL,TRAP 47.25MHZ SA				

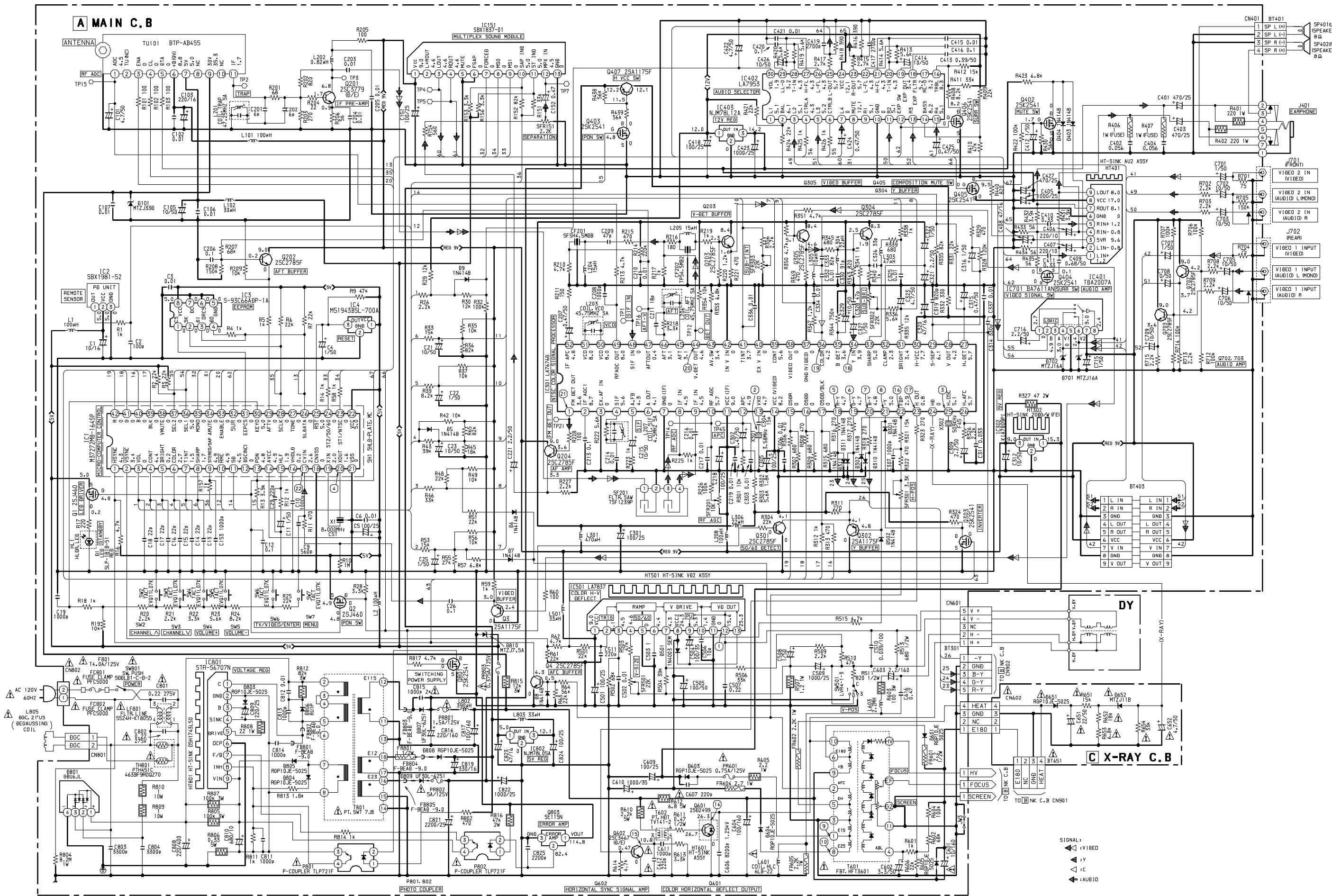
REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
NK C.B				SFR901	87-024-519-080		SFR,470 DIA6 V NTP
C901	87-018-129-080		CAP,TCU 680P-50 KB	SFR902	87-024-519-080		SFR,470 DIA6 V NTP
C902	87-018-129-080		CAP,TCU 680P-50 KB	SFR903	87-024-520-080		SFR,1K V RH063LC
C903	87-018-129-080		CAP,TCU 680P-50 KB	SFR904	87-024-520-080		SFR,1K V RH063LC
 C905	87-012-397-010		CAP,CER 1000P-2K BN	SFR905	87-024-520-080		SFR,1K V RH063LC
CN901	87-049-469-010		CONN,4P V	X-RAY C.B			
CN902	87-009-033-010		CONN,5P	 BT651	87-JBC-626-010		CONN ASSY,4P V WHT TV-NK
CN903	87-A60-485-010		CONN,2P V LV GRA	 C651	87-016-638-080		CAP,E 22-50 SSL
L901	87-005-615-080		COIL,120UH J LAV35	 C652	87-016-636-080		CAP,E 4.7-50 SSL
R904	87-A00-165-090		RES,M/F 15K-2W J RSF(S)	 CN602	8Z-JB1-610-010		CONN,4P TXX B TO B
R905	87-A00-165-090		RES,M/F 15K-2W J RSF(S)	 R651	87-025-380-080		RES,M/F 15K-1/6W F
R906	87-A00-165-090		RES,M/F 15K-2W J RSF(S)	 R652	87-025-381-080		RES,M/F 18K-1/6W F
R907	87-025-355-080		RES,M/F 100-1/6W F	 R653	88-121-682-080		RES,6.8K-1/8W J
S901	84-LB3-610-010		SOCKET,CRT 9P HPS1171	 R654	88-121-333-080		RES,3.3K-1/8W J

Safety Components Symbol

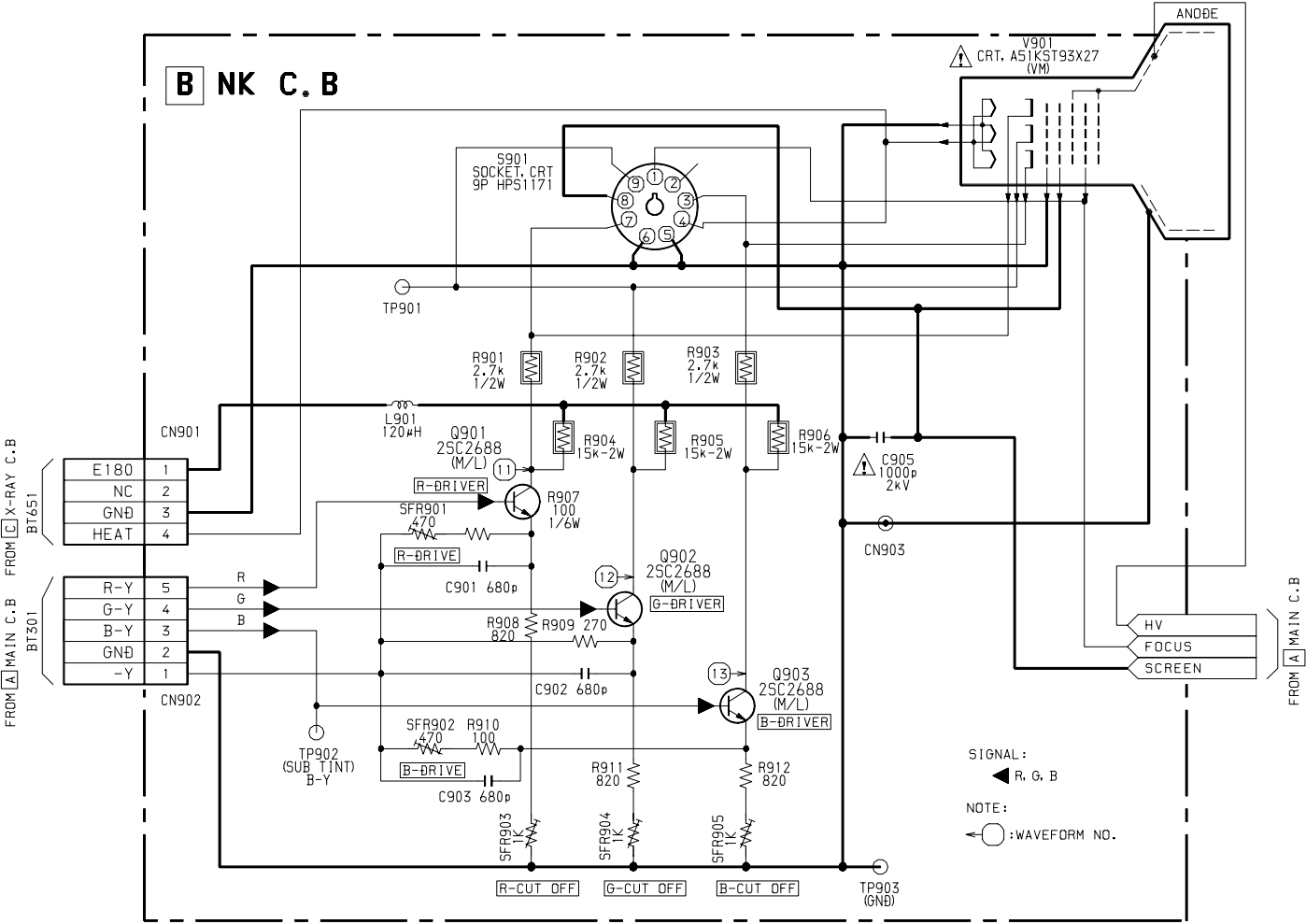
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to confirm to special Safety Specifications.

Therefore, when replacing a component with this symbol make absolutely sure that you use a designated part.

SCHEMATIC DIAGRAM – 1 (MAIN)



SCHEMATIC DIAGRAM – 2 (NK)



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